transmittal

Date: May 12, 2021
Attn: Paul Davis, P.E.
Address: 1000 Rochester Hills Dr.
Rochester Hills, MI 48309
Job No: RCOC 55233

We are sending you the following items:

☐ Drawings ☐ Plans ☐ Agreement
☐ Letter ☐ Proposal ☒ Other: Application for Flood Plain Use

Number of copies and description:

1	City of Rochester Hills – Application for Flood Plain / Floodway Use Permit
1	Site Plan – compensation cut area
1	Approved EGLE JPA # WRP026879

These are transmitted as checked below:

☒ For Approval ☐ For Review and Comment ☐ Returned For Corrections
☐ For Your Use ☐ Approved As Submitted ☐ For Your Signature
☐ As Requested ☐ Approved As Noted ☐ Other:

Comments:

Rochester Hills permit application for constructing a compensating cut basin to mitigate 100-year flood plain impacts associated with the RCOC - East Avon Road at Dequindre Road Roundabout & Bridge over the Clinton River Project and the GLWA Water Main Project (including road and intersection improvements on E Avon Rd, Dequindre Rd, and 23 Mile Rd. EGLE JPA attached.

Signed: David Conn
Name: David Conn, P.E. **Title:** Project Manager

cc: Andrew Peters, P.E. (RCOC) via email
Jeff Obrien, P.E. (RCOC) via email

OHM Advisors
34000 PLYMOUTH ROAD
LIVONIA, MICHIGAN 48150
T 734.522.6711
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OHM-Advisors.com

ROCHESTER HILLS
MICHIGAN

Application #_____
Permit #_____

APPLICATION FOR FLOOD PLAIN/FLOODWAY USE PERMIT

Applicant Name: Andrew Peters, P.E. - Road Commission for Oakland County

Address: 31001 Lahser Road

City, State, Zip: Beverly Hills, MI 48025

Phone & Fax: 248-645-2000

Property Tax I.D. Number: 15 -13 - 476 - 006

Non-Refundable Application Fee.....$425.00

Permit Fee..... 75.00

FEMA Map Amendment or Revision ($200.00)..... _____

Inspection Escrow (minimum $480.00)..... _____

Administrative Charge (20% of total fees min. $75.00)..... _____

Total..... _____

Cash Receipt #_____

Date Paid: _____

Legal Description: RCOC owned Right-of-Way.

A parcel of land situated in the E 1/2 of the SE 1/4 of Section 13, Town 3 North, Range 11 East, City of Rochester Hills, Oakland County, Michigan, Beginning at a point in the center of a highway (Dequindre Road), said point being N 00°30'00" W 1377.80 feet along the East line of said Section 13 - and S 64°27'00" W 649.44 feet from the SE corner of said Section 13; thence S 64°27'00" W 468.30 feet; thence N 22°58'42" W 372.15 feet to the center of a highway (old Avon Road); thence N 63°57'00" E 333.0 feet along the center of said highway (old Avon Road), thence to its intersection with the center line of the first mentioned highway (Dequindre Road); thence S 43°07'00" E 393.0 feet along the center line of the highway (Dequindre Road) to the Point of Beginning. Except beginning at a point distance N 00°30'00" W 1377.80 feet and S 64°27'00" W 649.44 feet from the SE corner of said Section 13; thence S 64°27'00" W 65.0 feet; thence N 43°07'00" W 65.0 feet; thence N 64°27'00" E 65.0 feet; thence S 43°07'00" E 65.0 feet to the Point of Beginning.

Brief description of the proposed use of type of occupation of the flood plain / floodway:

Proposed road and bridge improvements on Avon Rd and Dequindre Rd including, HMA paving, modern roundabout, and pedestrian pathway impact the existing 100 year flood plain. Flood plain impacts will be mitigated via compensating cut in the southwest quadrant of Avon Rd and Dequindre Rd intersection.

Upon issuance of an approved permit, it is understood that:

The degree of flood protection required by Article III Flood Plain Use and Regulation, Section 114-128 is considered reasonable for regulatory purposes and it is based upon engineering and scientific methods of study.

1. Larger floods may occur on rare occasions.
2. Flood heights may be increased by man-made or natural causes, such as ice jams and bridge openings restricted by debris.
3. Approval shall not be considered a guarantee or warranty of safety from flood damage.
4. Approval does not imply that areas outside the flood plain will be free from flood damage.

Approval does not create liability on the part of the City of Rochester Hills or any officer or employee thereof for any flood damages that result from reliance on this Section or any administrative decision lawfully made thereunder.

Andrew Peters Digitally signed by Andrew Peters DN: C=US, E=apeters@rcoc.org, O=RCOC, CN=Andrew Peters Date: 2021.05.13 07:28:18-04'00'

5/13/2021

_____ Date:_____

Applicant Signature

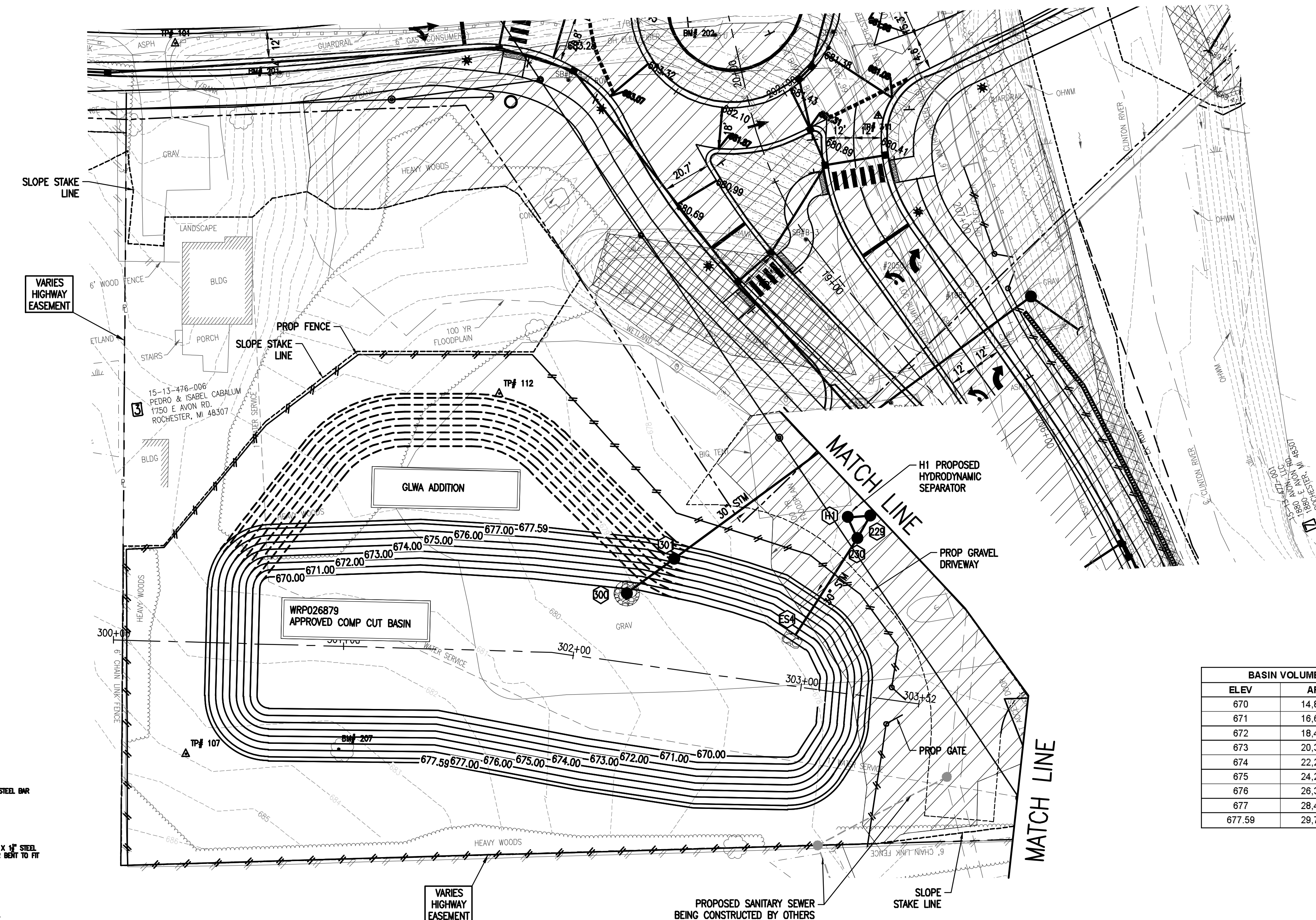
_____ Date: _____

Approved by

This application and permit, if approved, does not relieve the applicant of his responsibility for applying and obtaining other applicable permits.

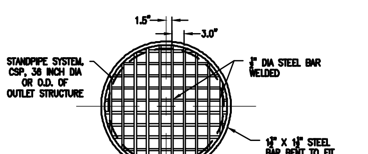
See Ordinance-Article III, Section 114-126 through Section 114-194 for additional information and requirements.

POND ON PARCEL 3



NOTE: ADDITIONAL GLWA 100-YEAR FLOOD PLAIN COMPENSATION CUT ACCOUNTS FOR THE FLOOD PLAIN FILL ASSOCIATED WITH THE GLWA EARLY WORKS PACKAGE. THE GLWA PROJECT IS LOCATED ON THE NORTHEAST SIDE OF THE CLINTON RIVER AND INCLUDES THE CONSTRUCTION OF AN 8-FOOT DIAMETER WATER MAIN, AVON RD WIDENING, AND A MODERN ROUNDABOUT AT THE INTERSECTION OF AVON RD, 23 MILE RD, AND DEQUINDRE RD.

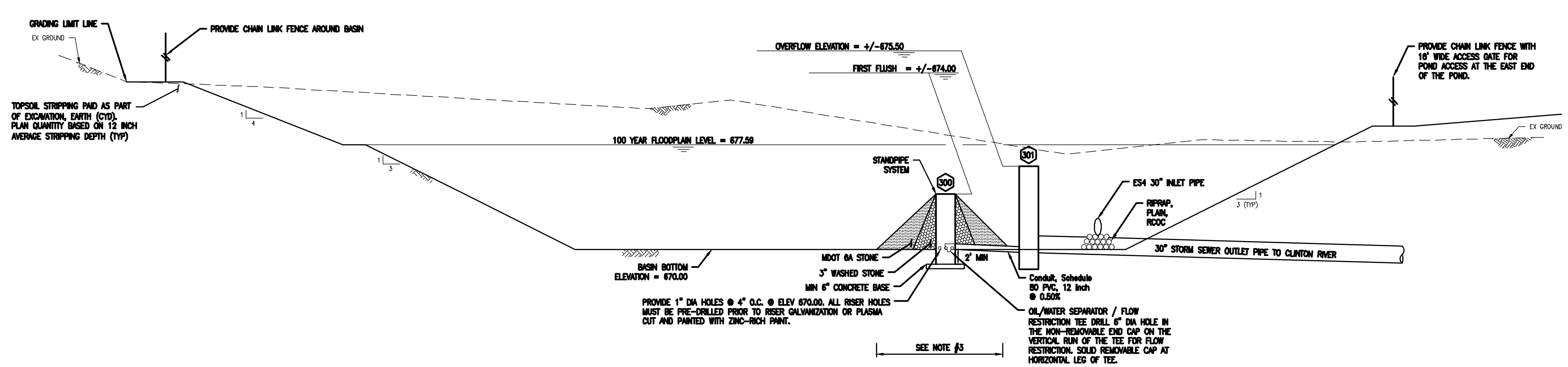
BASIN VOLUME (BELOW 100 YEAR FLOODPLAIN)				GLWA - BASIN BELOW 100 YEAR FLOODPLAIN		
ELEV	AREA	VOLUME	TOTAL VOLUME	AREA	VOLUME	TOTAL VOLUME
670	14,837.5	-	-	21,118.2	-	-
671	16,612.2	15,724.9	15,724.9	23,041.4	22,079.8	22,079.8
672	18,443.6	17,527.9	33,252.8	25,021.0	24,031.2	46,111.0
673	20,331.4	19,387.5	52,640.3	27,057.3	26,039.2	72,150.2
674	22,275.9	21,303.7	73,944.0	29,150.1	28,103.7	100,253.9
675	24,276.9	23,276.4	97,220.4	31,299.5	30,224.8	130,478.7
676	26,334.4	25,305.7	122,526.1	33,505.0	32,402.3	162,880.9
677	28,448.5	27,391.5	149,917.6	35,767.9	34,636.5	197,517.4
677.59	29,722.4	17,160.4	167,078.0	37,129.3	20,775.7	218,293.1



NOTE:
1. BAR GRATE IS TO BE REMOVABLE FROM STANDPIPE.
2. APPROXIMATE WEIGHT OF GRATE IS: 70 LBS FOR STANDPIPE; 85 LBS FOR 48" DIA OUTLET STRUCTURE

BAR GRATE DETAIL
NO SCALE

NOTE:
EXTREME CARE MUST BE EXERCISED TO INSURE THAT THE OUTLET HOLES IN THE STANDPIPE(S) DO NOT BECOME CLOGGED WITH SEDIMENT. WASH/REPLACE STONE FOR THE OUTLET CONTROL STRUCTURE AS A FINAL SESC MEASURE IF CLOGGED.



CROSS SECTION VIEW
NOT TO SCALE

LEGEND

(crosshatch)	WETLANDS FILL
(hatch)	IMPACTS WITHIN 100 YR FLOODPLAIN (DRAINAGE AREA OVER 2 SQ MILES)
(stones)	RIP RAP

NOTES:
1. ALL DISTURBED AREAS WITHIN THE GRADING LIMITS SHALL BE RESTORED ACCORDING TO TURF ESTABLISHMENT, THM SEED, REGULAR MULCH, PERFORMANCE, RCOC OR TURF ESTABLISHMENT, ES SEED, SPECIAL MULCH, PERFORMANCE, RCOC. SEE SESC SHEET.
2. IN THOSE LOCATIONS WHERE THE DETENTION POND IS TO BE BUILT UP OR BERMED ABOVE EXISTING GRADE, THE FOLLOWING APPLIES:
   - THE BERM SHALL BE "KEYED" IN TO THE EXISTING GROUND BY EXCAVATING A MINIMUM OF 1.5' PRIOR TO PLACING EMBANKMENT, BERM, RCOC.
   - CONSTRUCT BERM ON SUITABLE BASE SOILS OR COMPACTED SOILS, AS DETERMINED BY THE ENGINEER PRIOR TO PLACING BERM EMBANKMENT.
   - PLACE BERM EMBANKMENT IN 6 INCH LIFTS AND COMPACT TO 95% OF MAXIMUM DRY DENSITY. SOIL MIX SHALL BE AS DESCRIBED IN THE SPECIAL PROVISION FOR EMBANKMENT, BERM, RCOC.

   IN THOSE LOCATIONS WHERE THE DETENTION POND SIDES ARE IN CUT SECTIONS, THEN EARTHWORK SHALL BE PAID AS EXCAVATION, EARTH. EMBANKMENT, CIP SHALL BE USED FOR FILLING IN ANY VOIDS LEFT BY TOPSOIL STRIPPING TO REACH FINAL GRADE.
3. STANDPIPE SYSTEM, CSP, 36 INCH DIA INCLUDES STONE BACKFILL, CONCRETE PAD, FLOW RESTRICTION TEE, AND WATER SEPARATOR AS DESCRIBED IN SPECIAL PROVISION. BAR GRATE IS PAID FOR SEPARATELY.

OHM
ARCHITECTS ENGINEERS PLANNERS
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ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER
POND PLAN

NOTICE OF AUTHORIZATION

Permit Number: WRP026879 v. 1
Site Name: 63 - Avon Road over Clinton River

Date Issued: December 22, 2020
Expiration Date: December 22, 2025

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division, P.O. Box 30458, Lansing, Michigan 48909-7958, under provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, specifically:

- ☒ Part 31, Floodplain Regulatory Authority of the Water Resources Protection.
- ☒ Part 301, Inland Lakes and Streams.
- ☒ Part 303, Wetlands Protection.
- ☐ Part 315, Dam Safety.
- ☐ Part 323, Shorelands Protection and Management.
- ☐ Part 325, Great Lakes Submerged Lands.
- ☐ Part 353, Sand Dunes Protection and Management.

Authorized activity:

Remove the existing structure at the Avon Road crossing of the Clinton River. Construct a 94-foot long by 66-foot span by 17.1-foot rise concrete tee bridge. Construct a roundabout at the Avon-Dequindre Road intersection, reconstruct both roads, and construct 2,167 linear feet of pedestrian pathway along both sides of Avon Road bridge, and both sides of Avon Road and Dequindre Road that connects Yates Park, Bloomer Park, and Gene Shepard Park. Construct 250 linear feet of sheet pile wall with rip rap toe stabilization along the eastern edge of Dequindre Road where it parallels the Clinton River. Install three storm sewer outfalls to the Clinton River and a sanitary forcemain under the Clinton River. Construct a 6,188 cubic yard retention basin at the vicinity of the Avon-Dequindre Road intersection for stormwater pretreatment. Work includes placement of 158 cubic yards of fill and 922 cubic yards of riprap impacting 0.164 acres of adjacent wetland. Mitigation will occur at a ratio of 1:1 for a total of 0.164 acres.

This notice must be displayed at the site of work.
Laminating this notice or utilizing sheet protectors is recommended.
Please refer to the above permit number with any questions or concerns.

EGLE-WRD
WRP026879 v1.0
Approved
Issued On:12/22/2020
Expires On:12/22/2025

To be conducted at property located in: Oakland County, Waterbody: Clinton River, wetlands
Section 13, Town 03N, Range 11E, City of Rochester Hills

Permittee:
Andrew Peters
Road Commission for Oakland County
31001 Lahser Road
Beverly Hills, Michigan 48025

Issued By:

Holly Vickers
Transportation Review Unit
Water Resources Division
616-295-2787

This notice must be displayed at the site of work.
Laminating this notice or utilizing sheet protectors is recommended.
Please refer to the above permit number with any questions or concerns.

EGLE-WRD
WRP026879 v1.0
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Issued On:12/22/2020
Expires On:12/22/2025

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
WATER RESOURCES DIVISION PERMIT

Issued To:

Road Commission for Oakland County
31001 Lahser Road
Beverly Hills, Michigan 48025

Permit No:	WRP026879 v.1
Submission No.:	HP2-F9TF-9J1Y2
Site Name:	63 - Avon Road over Clinton River
Issued:	December 22, 2020
Revised:	
Expires:	December 22, 2025

This permit is being issued by the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division (WRD), under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); specifically:

- ☒ Part 301, Inland Lakes and Streams
- ☒ Part 303, Wetlands Protection
- ☐ Part 315, Dam Safety
- ☒ Part 31, Water Resources Protection (Floodplain Regulatory Authority)
- ☐ Part 323, Shorelands Protection and Management
- ☐ Part 325, Great Lakes Submerged Lands
- ☐ Part 353, Sand Dunes Protection and Management

Permission is hereby granted, based on permittee assurance of adherence to State of Michigan requirements and permit conditions, to:

Authorized Activity:

Remove the existing structure at the Avon Road crossing of the Clinton River. Construct a 94-foot long by 66-foot span by 17.1-foot rise concrete tee bridge. Construct a roundabout at the Avon-Dequindre Road intersection, reconstruct both roads, and construct 2,167 linear feet of pedestrian pathway along both sides of Avon Road bridge, and both sides of Avon Road and Dequindre Road that connects Yates Park, Bloomer Park, and Gene Shepard Park. Construct 250 linear feet of sheet pile wall with rip rap toe stabilization along the eastern edge of Dequindre Road where it parallels the Clinton River. Install three storm sewer outfalls to the Clinton River and a sanitary forcemain under the Clinton River. Construct a 6,188 cubic yard retention basin at the vicinity of the Avon-Dequindre Road intersection for stormwater pretreatment. Work includes placement of 158 cubic yards of fill and 922 cubic yards of riprap impacting 0.164 acres of adjacent wetland. Mitigation will occur at a ratio of 1:1 for a total of 0.164 acres.

Waterbody Affected:	Clinton River, Wetlands
Property Location:	Oakland County, City of Rochester Hills, Town/Range/Section 03N11E13

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Authority granted by this permit is subject to the following limitations:

A. Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.
B. The permittee, in exercising the authority granted by this permit, shall not cause unlawful pollution as defined by Part 31 of the NREPA.
C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.
D. All work shall be completed in accordance with the approved plans and specifications submitted with the application and/or plans and specifications attached to this permit.
E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved.
F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with 2013 PA 174 (Act 174) and comply with each of the requirements of Act 174.
G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits, or complying with other state statutes.
H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
I. Permittee shall notify EGLE within one week after the completion of the activity authorized by this permit by completing and forwarding the attached preaddressed postcard to the office addressed thereon.
J. This permit shall not be assigned or transferred without the written approval of EGLE.
K. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific state act, federal act, and/or rule under which this permit is granted.
L. All dredged or excavated materials shall be disposed of in an upland site (outside of floodplains, unless exempt under Part 31 of the NREPA, and wetlands).
M. In issuing this permit, EGLE has relied on the information and data that the permittee has provided in connection with the submitted application for permit. If, subsequent to the issuance of a permit, such information and data prove to be false, incomplete, or inaccurate, EGLE may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.
N. The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents, and representatives for any and all claims or causes of action arising from acts or omissions of the permittee, or employees, agents, or representative of the permittee, undertaken in connection with this permit. The permittee's obligation to indemnify the State of Michigan applies only if the state: (1) provides the permittee or its designated representative written notice of the claim or cause of action within 30 days after it is received by the state, and (2) consents to the permittee's participation in the proceeding on the claim or cause of action. It does not apply to contested case proceedings under the Administrative Procedures Act, 1969 PA 306, as amended, challenging the permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.
O. Noncompliance with these terms and conditions and/or the initiation of other regulated activities not specifically authorized shall be cause for the modification, suspension, or revocation of this permit, in whole or in part. Further, EGLE may initiate criminal and/or civil proceedings as may be deemed necessary to correct project deficiencies, protect natural resource values, and secure compliance with statutes.
P. If any change or deviation from the permitted activity becomes necessary, the permittee shall request, in writing, a revision of the permitted activity from EGLE. Such revision request shall include complete documentation supporting the modification and revised plans detailing the proposed modification. Proposed modifications must be approved, in writing, by EGLE prior to being implemented.

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Q. This permit may be transferred to another person upon written approval of EGLE. The permittee must submit a written request to EGLE to transfer the permit to the new owner. The new owner must also submit a written request to EGLE to accept transfer. The new owner must agree, in writing, to accept all conditions of the permit. A single letter signed by both parties that includes all the above information may be provided to EGLE. EGLE will review the request and, if approved, will provide written notification to the new owner.
R. Prior to initiating permitted construction, the permittee is required to provide a copy of the permit to the contractor(s) for review. The property owner, contractor(s), and any agent involved in exercising the permit are held responsible to ensure that the project is constructed in accordance with all drawings and specifications. The contractor is required to provide a copy of the permit to all subcontractors doing work authorized by the permit.
S. Construction must be undertaken and completed during the dry period of the wetland. If the area does not dry out, construction shall be done on equipment mats to prevent compaction of the soil.
T. Authority granted by this permit does not waive permit requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent (CEA).
U. Authority granted by this permit does not waive permit requirements under the authority of Part 305, Natural Rivers, of the NREPA. A Natural Rivers Zoning Permit may be required for construction, land alteration, streambank stabilization, or vegetation removal along or near a natural river.
V. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.
W. Unless specifically stated in this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a wetland or on bottomland of the water body are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.
X. For projects with potential impacts to fish spawning or migration, no work shall occur within fish spawning or migration timelines (i.e., windows) unless otherwise approved in writing by the Michigan Department of Natural Resources (MDNR), Fisheries Division.
Y. Work to be done under authority of this permit is further subject to the following special instructions and specifications:

1. All work shall be completed in accordance with attached plans; kept on file at EGLE, WRD, Transportation Review Unit.

2. Authority granted by this permit does not waive compliance requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA. Any discharge of sediment into waters of the state and/or off the road right-of-way is a violation of this permit, Part 91, and Part 31, Water Resources Protection, of the NREPA. A violation of these parts subjects the permittee to potential fines and penalties.

3. This permit does not authorize or sanction work that has been completed in violation of applicable federal, state, or local statutes.

4. The permittee is responsible for acquiring all necessary easements or rights-of-way before commencing any work authorized by this permit. All construction operations relating to or part of this project shall be confined to the existing right-of-way limits or other acquired easements.

5. Temporary soil erosion and sedimentation control measures shall be installed before or upon commencement of the earth change and shall be maintained daily. Temporary soil erosion and sedimentation control measures shall be maintained until permanent soil erosion and sedimentation control measures are in place and the area is stabilized. Permanent soil erosion and sedimentation control measures for all slopes, channels, ditches, or any disturbed area shall be installed within five (5) calendar days after final grading or the final earth change has been completed.

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6. All raw areas in uplands resulting from the permitted construction activity shall be effectively stabilized with sod and/or seed and mulch (or other technology specified by this permit or project plans) in a sufficient quantity and manner to prevent erosion and any potential siltation to surface waters or wetlands. Temporary stabilization measures shall be installed before or upon commencement of the permitted activity and shall be maintained until permanent measures are in place. Permanent measures shall be in place within five (5) days of achieving final grade.

7. All raw earth within 100 feet of a lake, stream, or wetland that is not brought to final stabilization by the end of the active growing season shall be temporarily stabilized with mulch blankets in accordance with the following dates: September 20th for the Upper Peninsula, October 1st for the Lower Peninsula north of US-10, and October 10th for the Lower Peninsula south of US-10.

8. This permit placard shall be kept posted at the work site, in a prominent location at all times for the duration of the project, or until permit expiration.

9. This permit is being issued for the maximum time allowed and no extensions of this permit will be granted. Initiation of the construction work authorized by this permit indicates the permittee's acceptance of this condition. The permit, when signed by EGLE, will be for a five-year period beginning at the date of issuance. If the project is not completed by the expiration date, a new permit must be sought.

10. Unless specifically stated under the "Permitted Activity" of this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a wetland or on bottomland of the waterbody are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.

11. All slurry resulting from any dewatering operation shall be discharged through a filter bag or pumped to a sump located away from wetlands and surface waters and allowed to filter through natural upland vegetation, gravel filters, or other engineered devices for a sufficient distance and/or period of time necessary to remove sediment or suspended particles. The discharge of slurry water resulting from the hydrodemolition of concrete is not allowed to enter a lake, stream, or wetland.

12. All dredge/excavated spoils including organic and inorganic soils, vegetation, and other material removed shall be placed on upland (non-wetland, non-floodplain or non-bottomland), prepared for stabilization, and revegetated and reseeded with native Michigan species appropriate to the site and mulched in such a manner so as to prevent and ensure against erosion of any material into any waterbody, wetland, or floodplain.

13. The permittee is advised of other potential requirements and legal liabilities under other statutes for placement of dredge material on upland and is responsible for compliance with all applicable local, state, and federal regulations. Please review the information under Dredging Documents at the attached link: https://www.michigan.gov/deq/0,4561,7-135-3312_4123-14201--,00.html

14. During removal or repair of the existing structure, every precaution shall be taken to prevent debris from entering any watercourse. Any debris reaching the watercourse during the removal and/or reconstruction of the structure shall be immediately retrieved from the water. All material shall be disposed of in an acceptable manner consistent with local, state, and federal regulations.

15. The use of explosives for removal of the structure over the waterbody, including any abutments or piers, is strictly prohibited.

16. Prior to the removal of the existing structures, cofferdams of steel sheet piling, gravel bags, clean stone, coarse aggregate, concrete or other acceptable barriers shall be installed to isolate all

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construction activity from the water. The barriers shall be maintained in good working order throughout the duration of the project. Upon project completion, the accumulated materials shall be removed and disposed of at an upland site.

17. All cofferdam and temporary steel sheet pile shall then be removed in its entirety, unless specifically shown to be left in plan on the accepted plans. Cofferdam and sheet pile that is left in place shall be cut off at the elevation shown on the plans and shall be a minimum of one foot below the stream bottom.

18. The road fill side slopes shall not be steeper than 1-on-2 (1 vertical to 2 horizontal) except where headwalls of reinforced concrete, mortar masonry, dry masonry, or other acceptable methods are used.

19. All riprap shall be properly sized and graded and shall consist of clean natural field stone or rock (free of paint, soil or other fines, asphalt, soluble chemicals, or organic material). Broken concrete may NOT be used.

20. Road fill side slopes terminating in the stream and any raw streambanks resulting from the construction, shall be stabilized with temporary measures in accordance with appropriate Best Management Practices based on site conditions, and if necessary, may be riprapped extending above the ordinary high water mark, before or upon commencement of the permitted activity. Temporary stabilization measures shall be maintained until permanent measures are in place.

21. All other road fill slopes, ditches, and other raw areas draining directly to the stream may be protected with riprap, sod and/or seed and mulch as may be necessary to provide effective erosion protection. The placement of riprap shall be limited to the minimum necessary to ensure proper stabilization of the side slopes and fill in the immediate vicinity of the structure.

22. If the project, or any portion of the project, is stopped and lies incomplete for any length of time (other than that encountered in a normal work week) every precaution shall be taken to protect the incomplete work from erosion, including the placement of temporary gravel bag riprap, temporary seeding and mulching, or other acceptable temporary protection.

23. No work shall be done in the stream during periods of above-normal flows except as necessary to prevent erosion.

24. Prior to the start of construction, all adjacent non-work wetland areas shall be protected by properly trenched sedimentation barrier to prevent sediment from entering the wetland. Orange construction fencing shall be installed as needed to prohibit construction personnel and equipment from entering or performing work in these areas. Fence shall be maintained daily throughout the construction process. Upon project completion, the accumulated materials shall be removed and disposed of at an upland site, the sedimentation barrier shall then be removed in its entirety and the area restored to its original configuration and cover.

25. To avoid disturbance of Northern long-eared bat, which is federally listed as a threatened species, or Indiana bat, which is federally listed as an endangered species, any tree larger than three inches in diameter shall not be cut between April 1 and September 30 of any year.

26. Stormwater shall not directly discharge to the stream.

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27. Documentation of wetland mitigation shall be submitted and approved to EGLE prior to any work in regulated areas. The City of Rochester Hills may also require a permit and/or mitigation.

Issued By:

Holly Vickers
Transportation Review Unit
Water Resources Division
616-295-2787

cc: Rochester Hills Clerk
Oakland County Drain Commissioner
Oakland CEA
Mr. Joseph Robison, MDNR, Wildlife
Ms. Sara Thomas, MDNR, Fisheries Division
Mr. Adam Rychwalski, OHM Advisors
Ms. Sue Tepatti, EGLE
Ms. Cheryl Petroski-Wilson, EGLE

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Digitally signed by:
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UCV76LWATRMA01.dmz-ad.state.mi.us
Date: 2020.10.26 09:38:02 -04:00
Reason: Copy Of Record
Location: State of Michigan

Digital PUBLIC TRANSPORTATION AGENCY Projects EGLE/USACE Joint Permit Application (JPA) for Inland Lakes and Streams, Great Lakes, Wetlands, Floodplains, Dams, Environmental Areas, High Risk Erosion Areas and Critical Dune Areas

version 1.16

(Submission #: HP2-F9TF-9J1Y2, version 1)

Details

Submission ID	HP2-F9TF-9J1Y2
Submission Reason	New
Status	Submitted

Form Input

Instructions

To download a copy or print these instructions. Please click this link (recommended).

EGLE/USACE Joint Permit Application (JPA)

READ THOROUGHLY BEFORE STARTING THE FORM
It is recommended to download a pdf of this page at www.michigan.gov/jointpermit for reference while filling out the form. Please also refer to this website for additional information regarding this form, including a glossary and other helpful resources on information required to be submitted in this form.

This is the Joint Permit Application (JPA) for construction activities where the land meets the water. This application covers permit requirements derived from state and federal rules and regulations for activities involving:

Wetlands
Floodplains
Marinas
Dams
Inland Lakes and Streams
Great Lakes Bottomlands
Critical Dunes
High Risk Erosion Areas

This application prevents duplication of state and federal forms for these activities and provides concurrent review under all pertinent state and federal laws. In the case of U.S. Army Corps of Engineers (USACE) jurisdiction, the Michigan Department of Environment, Great Lakes and Energy (EGLE) will also send a copy of this Joint Permit Application to the USACE for simultaneous processing. EGLE will provide coordination between state and federal agencies during the application review.

This application form is set up with the following sections to be completed by the applicant (note that it is recommended to gather all this information prior to starting this form):

Contact Information:
Applicant, Property Owner(s), Consultant(s), and any other Authorized Representative(s)
Authorizations are required from the property owner for:
- when the applicant is not the owner,
- when there is a consultant/representative for the applicant,
- when spoils disposal locations are not on site,
- when other permissions are necessary based on project specifics and are identified by the form.

Project Location Information:

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Address, coordinates, and directions to the site, etc.

Background Information:
Existing site conditions, other related permits, existing easements/encumbrances, other related application numbers (pre-application meetings, Wetland Identification Program, etc.)

Permit Application Category and Public Notice Information:
This section asks what permit application category you believe fits your project. While this is not required to submit the application, knowing this will also help you submit the right permit application fee and avoid a correction request and processing delays.

The choices of permit application categories to select in the form are:
General Permit, $50 fee (https://www.michigan.gov/documents/deq/wrd-general-permit-categories_555828_7.pdf)
Minor Project, $100 fee (https://www.michigan.gov/documents/deq/wrd-minor-project-categories_555829_7.pdf)
Public Notice Individual Permit, range from $500-$4,000 depending on type of activity. For High Risk Erosion Areas and Critical Dune Areas fees for Public Notice individual permit applications can range from $50-$4000. Additional fees may be applied for some special project requirements such as hydraulic analysis, dam projects, and and a special exception application in a critical dune area. See Fee Schedule on website for more information.

Unsure, select this and the permit reviewer will make the determination on permit type after the application is submitted based on the project details. However, some fee is required to be submitted with the application. If an additional fee is required, EGLE will send a correction request that will show the remaining amount required. The application will not be considered complete without the proper fee.

Adjacent Landowner contact information for Public Notice projects is required by law. This includes any parcels touching the project parcel and parcels across the street.

Project Description:
Information on the Proposed Use and Purpose of the project (who and what the project is intended for and why is it needed). This includes a written summary of the project as well as a list of project uses and types to select from as follows:

Project Use Selections:
Private
Commercial
Public/Gov/Tribal
Federal/State funded
Non-Profit
Other

Project Type Selections:
Agriculture
Airport
Development- Condo/ Subdivision/Residential
Development-Commercial/ Industrial
Drain-County
Drain-Private
Drawdown
Lake, Drawdown
Wetland Forestry
Landfill
Marina/Mooring Facility
Marine Railway
Mining-Mineral,
Mining-Sand and Gravel
Private Residence
Restoration-Wetland
Restoration-Stream
Transportation
Septic System Surveying or Scientific Measuring Device
Utility-Electrical, Fiber optic
Utility-Oil and gas pipelines
Utility-Sewer/water line
Other

Construction Details including sequencing, timeframes, SESC measures, etc.

Alternatives Analysis detailing all options considered and why this is the least impactful feasible and prudent proposal. The depth of this analysis is typically commensurate with the size and purpose of the project and at minimum should include variables

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such as alternate locations (including other properties), configurations and sizes (layout and design), and methods (construction technologies), and other constraints (local regulations, resource issues). Discussion should also include why the "do nothing" alternative is not feasible or prudent.

Project Compensation:
Narrative of how proposed impacts will be compensated (mitigated or other minimization measures), including amount, location, and method; or why mitigation should not be required. This can be traditional mitigation and/or other techniques used to minimize overall loss of functions.

Resource and Activity Type. This section is intended to determine what additional sections of the application are generated (as seen on the left side of the screen) for further information gathering. This includes questions regarding what Resource feature is involved (e.g., wetland, stream, floodplain, pond, dam, critical dune, etc.) and if there are identified Special Activities (i.e., activities requiring a specific series of questions to be answered). Be sure to choose all that apply to your project. If your activity is not listed, choose "None of the Above" and move on to the next question. More specific activity questions will appear later based on the resource section answers.

Resource Information and Impacts Sections (Multiple Sections). These are a series of sections that will appear on the left side of the screen based on your answers to the Resource and Activity Types section. You will input further information on the existing resources to be impacted (e.g., wetland type, permanent or temporary impact, water elevation data, drainage area, etc.) and all proposed Project Activities with their Dimensions (e.g., length, width, depth, square footage). For example, when "Wetland" is selected as a resource that your project will involve, a "Wetland Project Information and Impacts" section will appear on the left side of the screen that includes questions specific to gathering information about the wetland.

For projects including Floodplains, Marinas, Dams, Critical Dunes, or High Risk Erosion Areas individual sections will appear on the left side of the screen that include different sets of specialized questions as required by those programs. These sections do not share a specific format. Help tips will guide you in filling out these sections.

For projects including wetlands, ponds, inland lakes, streams, or the Great Lakes resources, individual sections will appear on the left side of the screen that are similar in format to each other. Each of these resource sections asks initial general information and then has additional questions regarding the Types of Activities proposed for each resource. The outline for these resource activity impacts questions is Activity Type, Dimensions Table, and Special Questions.

There are four overall "Types of Activities" groups for wetlands, ponds, inland lakes, streams or the Great Lakes:
Fill Activities
Dredge Activities
Structure Activities
Other Activities

Under each of these Types of Activity questions, specific activity lists will be shown that are typical for that type (fill, dredge, structure, other) and resource (wetland, lake, stream, etc). Follow these steps to accurately fill out the Activity Type Questions:

1. Start with the Fill question and choose any activities on the list that is included in your project. If your activity is not shown, then select "None of the Above" and move to the next question.

2. When you select an activity listed under Fill, Dredge, Structure, or Other, a dimensions table will appear under that question. This table is where you enter EACH activity OF THE TYPE YOU SELECTED and associated dimensions. Be sure that all the activities you selected are also listed in the table with the dimensions. Multiple activities covering the same footprint may be combined on one line in the table (for example, riprap on slopes of driveway fill can be entered on the same impact dimensions line and does not necessarily need to be broken out).

3. Continue to answer the Activity Type questions (Fill, Dredge, Structure, Other) until all have been answered with either a specific Activity listed under that Type or "None of the Above". If you did not find your activity in any list then select "Other, Other" and provide a description of your activity in the space that appears. Please be as descriptive as possible.

Proposed mitigation questions may appear within specific resource types sections based on your answers. Enter any proposed mitigation in the appropriate section (wetland, stream, etc.) and if no mitigation is proposed you must provide commentary with an explanation as to why it is not required. Mitigation plans according to the mitigation checklist (link) are required for a complete application. When mitigation is proposed be sure to also select mitigation in the Permit Application Type section under the second question.

In the above sections, uploads will be prompted as required by the answers to questions. These should be uploaded in these location (ex, mitigation plans should be uploaded in the mitigation section). Please do not wait to upload one large document with all plans combined at the end. Note that each individual upload is limited to 10M.

Upload of Proposed Site Plans.
Any plans or explanatory narratives not requested in previous sections should be uploaded in this section. Construction Plans including overhead view, cross sections, and profiles showing each impact either to-scale or with dimensions are required and typically would be uploaded here. Plan labels should correspond with labels entered in the form for each activity selected. The

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application will not be complete without the proper site plans. If drawings are not received with all required dimensions and resources identified, then EGLE will send a correction request and your application processing will be delayed. However, please limit drawings, plans, and narratives submitted to the items necessary for permit review. For example, entire bid package documents and CAD drawings are often not helpful for permit review and may cause delays from wading through extraneous information. Plans, profiles and cross sections specific to the resource impacts are the most helpful.

Review:
This section allows you to see the entire form with the answers you entered. Please review for accuracy prior to hitting the submit button. A print option is provided on this screen (print to PDF is recommended). Once the application is submitted you may not make changes to it until the application has been assigned to a staff person.

Certify & Submit:
This is the final section of the application form. The ﷺSubmit Formﷺ button selection certifies that all information in the application is true and accurate and that you have the authority to apply for the permit as indicated. This application will become part of public record.

We recommend that you have the above information ready prior to starting this application. You will be able to save in-progress applications and come back later, but all required uploads and questions are necessary before the system will allow submittal of the application. Some sections of this application form load faster than others depending on the complexity of the questions. Thanks for your patience while you work through the application. For assistance with this form visit:
https://www.michigan.gov/jointpermit
Click here for additional information on maps, drawings, and other attachment

Contact Information

Applicant Information

First Name Andrew
Last Name *Peters*

Organization Name
Road Commission for Oakland County

Phone Type	Number	Extension
Business	2486452000	

Email
apeters@rcoc.org

31001 Lahser Road
Beverly Hills, MI 48025

Is the Property Owner different from the Applicant?
Yes

Property Owner Contact Information

First Name NONE PROVIDED
Last Name *NONE PROVIDED*

Organization Name
NONE PROVIDED

Phone Type	Number	Extension
NONE PROVIDED		

Email
NONE PROVIDED

[NO STREET ADDRESS SPECIFIED]
[NO CITY SPECIFIED], [NO STATE SPECIFIED] [NO ZIP CODE SPECIFIED]

Upload Attachment for Authorization from Property Owners
NONE PROVIDED
Comment
The Road Commission for Oakland County will obtain easements from the affected property owners.

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Has the applicant hired an agent or cooperating agency (agency or firm assisting applicant) to complete the application process?
Yes

Upload Attachment for Authorization from Agent
OHM_Authorization-letter_2020-01-28.pdf - 09/16/2020 12:03 PM
Comment
NONE PROVIDED

Agent Contact

First Name	Last Name
Adam	*Rychwalski*

Organization Name
OHM Advisors

Phone Type	Number	Extension
Business	7344664542	

Email
adam.rychwalski@ohm-advisors.com

34000 Plymouth Road
Livonia, MI 48150

Are there additional property owners or other contacts you would like to add to the application?
No

Project Location

DEQ Site Reference Number (Pre-Populated)
4506223750454425153

Project Location
42.6719,-83.0967

E Avon at Dequindre, Rochester Hills, MI

Project Location Address
E Avon at Dequindre
Rochester Hills, MI 48307

County
Oakland

Is there a Property Tax ID Number(s) for the project area?
No

Is there Subdivision/Plat and Lot Number(s)?
No

Is this project within Indian Lands?
No

Local Unit of Government (LUG)
Rochester Hills

Directions to Project Site
This site is at the east leg of the intersection of Avon Rd and Dequindre Rd.

Background Information

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Has EGLE and/or United States Army Corps of Engineers (USACE) conducted a pre-application meeting/inspection for this project?
Yes

Provide the date of the pre-application meeting/inspection
9/18/2019

Pre-application File Number:
HNR-X0QX-RTDSW

EGLE and/or USACE staff person involved in the pre-application meeting/inspection:
Holly Vickers

Has the project scope or design changed since the pre-application meeting/inspection?
No

Has EGLE completed a Wetland Identification Program (WIP) assessment for this site?
No

Environmental Areas are coastal wetlands on the shorelines of the Great Lakes. Enter this number only if a designated Environmental Area is in the proposed project area. Environmental Areas are designated locations along the Great Lakes shoreline. If you don't know whether there is an environmental area within the project area, leave blank. Additional information on Environmental Areas can be found by clicking the following link:
Click Here for Link

Environmental Area Number (if known):
NONE PROVIDED

Has the United States Army Corps of Engineers (USACE) completed either an approved or preliminary jurisdictional determination for this site?
No

Were any regulated activities previously completed on this site under an EGLE and/or USACE permit?
No

Have any activities commenced on this project?
No

Is this an after-the-fact application?
No

Are you aware of any unresolved violations of environmental law or litigation involving the property?
No

Is there a conservation easement or other easement, deed restriction, lease, or other encumbrance upon the property?
No

Are there any other federal, interstate, state, or local agency authorizations associated with this project?
No

Permit Application Category and Public Notice Information

Project Category Selection:
The Permit Application Category you apply under is dependent on the type and scope of activities you are undertaking and the resources affected. There is a three-tier permitting process to aid in expediting permits for regulated activities that occur on wetlands, inland lakes and streams, and the Great Lakes (Parts 301, 303, and 325): General Permit, Minor Project, and Individual Permit.

Additionally, Minor Project categories exist for floodplains under the authority of Part 31.

General Permit and Minor Project categories generally meet specific Best Management Practices criteria that have been shown to minimize impacts to resources if followed correctly. If you select a General Permit or Minor Project Category you must select the specific category(ies) that your project fits under. Any project that does not fit a General or Minor Category are Individual Permit projects. All projects in Critical Dunes, High Risk Erosion Areas, or Dam Safety projects will be Individual Permit

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Projects.

Indicate the type of permit being applied for.
Minor Project for wetlands, lakes, streams, floodplains, or Great Lakes

Link to General Permit Categories with Descriptions

Link to Minor Permit Categories with Descriptions

Link to Minor Project Category descriptions for Floodplain Only projects (See R323.1316)

If you are applying for a minor project permit, which project type(s) is being proposed?
MP 36a. Public Transportation Projects 1. Linear Transportation Projects
MP 36c. Public Transportation Projects 3. Riprap Scour Protection

If you are applying for a general permit, which project type(s) is being proposed?
GP C. Clear Span Bridge

Project Description

Project Use: (select all that apply - Private, Commercial, Public/Government/Tribal, Receiving Federal/State Transportation Funds, Non-profit, or Other)
Receiving Federal/State Funds
Public/Government/Tribal

Project Type (select all that apply):
Transportation

Please enter your answers in the text box for the next four questions. If you have a long description, please use the document upload at the end of the section. Please make every effort to enter your information directly into the application text boxes. If the answer is in an attachment, please identify that in the text box below.

Project Summary (Purpose and Use): Provide a summary of all proposed activities including the intended use and reason for the proposed project.
The purpose of this project is to: 1) Improve traffic flow, relieve congestion, and enhance traffic safety by constructing a modern roundabout at the intersection of E. Avon Rd and Dequindre Rd. in conjunction with reconstructing both roads to meet current MDOT and RCOC standards. 2) Replace the existing E. Avon Rd bridge over the Clinton River. Constructed in 1962, the single span prestressed box beam superstructure is 48-feet long and 36-feet wide and is currently in poor condition. The proposed 66-feet by 94-feet bridge includes an increased span length to provide long-term bank stability and address existing erosion concerns. The increased width will accommodate the proposed roundabout entry and exit legs while providing pedestrian pathways on both sides of E Avon Rd. The bridge has been designed to maintain its existing under clearance, approximately 4.5-feet allowing for canoe and kayak access. 3) Improve pedestrian connectivity in the region by constructing a pathway on E. Avon Rd and Dequindre Rd. The proposed pathway will connect Yates Park, Bloomer Park, and Gene Shepherd Park tying together an elaborate trail network. 4) Stabilize and protect Dequindre Rd from the progressive erosion occurring along the western edge of the Clinton River. The project will accomplish this by constructing a sheet pile wall in conjunction with rip rap slope stabilization along the eastern edge of Dequindre road where it parallels the Clinton River. 5) Drainage will be facilitated via curb and gutter and an enclosed storm sewer system. Proposed storm sewer outlets will utilize overland channels, deep sump basins, and or hydrodynamic separators to improve water quality. A 167,077 cubic feet basin will be constructed to compensate for 6134 cubic yards of fill below the 100-year floodplain that is necessary to construct the roundabout and bridge approaches. 6) The City of Rochester Hills will bore a 2 inch sanitary force main under the Clinton River.

Project Construction Sequence, Methods, and Equipment: Describe how the proposed project timing, methods, and equipment will minimize disturbance from the project construction, including but not limited to soil erosion and sedimentation control measures.
The project will begin with the installation of SESC measures. Temporary silt fencing will be installed around the wetlands and adjacent to the Clinton River prior to construction. Cofferdams will be installed within the Clinton River prior to removing the existing bridge to maintain flow for the duration of the project. The City of Rochester Hills sanitary forcemain relocation will be directionally bored under the Clinton River. Bridge demo and sheet pile wall construction is scheduled to begin under roadway closure beginning late fall of 2021, minimizing recreational and economic impacts for the surrounding parks and businesses. Bridge construction will immediately proceed after bridge demolition such that work within the river can be completed prior to the seasonal fishery restrictions. Road and bridge superstructure construction is scheduled to begin spring 2022 also under roadway closure resulting in a shorter construction duration. Spring / summer construction will include mass grading, underground utilities, roadway, roundabout, pathway, guardrail, lighting, restoration, and landscaping. The project is scheduled to reopen to traffic by fall of 2022.

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Project Alternatives: Describe all options considered as alternatives to the proposed project, and describe how impacts to state and federal regulated waters will be avoided and minimized. This may include other locations, materials, etc.
Several project alternatives were evaluated including no build, three, five, and boulevard lane options, and modernized traffic signals in lieu of the proposed roundabout. No build was eliminated as the existing bridge required replacement and current roadway configuration results in frequent backups. The three-lane roadway with modernized traffic signals was eliminated because of sub optimal levels of service, and the five-lane and boulevard options were eliminated due to adverse impacts to historical, recreational, commercial, utilities, and environmental features. The selected roundabout design at E Avon Rd and Dequindre Rd produces the most benefit to safety, traffic flow, congestion, and pedestrian connectivity while minimizing impacts to the surrounding parks and historic properties. The proposed design was heavily impacted by the following existing site conditions: • The existing topography of the project area is hilly with a substantial grade change along E. Avon Rd. west of the intersection. The roadway profile has grades over 6% and is cut into the side of a slope with a steep embankment to the north and a large drop-off to the south. The proposed design utilizes guardrail with 1 on 2 side slopes to minimize impacts where possible. Areas outside of the guardrail influence will be graded to meet clear zone requirements. The proposed E. Avon Rd profile has been optimized to provide ADA compliant sidewalk crossings, suitable roadway cross slopes within the intersection, and 4.5-foot bridge under clearance at the Clinton River. • The proposed project area contains several large community dependent underground utilities that need to remain in service and are not easily relocated. The City of Rochester Hills has a 36-inch water main crossing the Clinton River along the north side of the bridge, the GLWA has proposed a 96-inch water main east of the bridge, the OCWRC has a 66-inch sanitary interceptor sewer that changes to 96-inchs and OMID jurisdiction when it combines with a 30-inch City of Rochester sanitary sewer under Dequindre Rd south of the intersection. In addition to the underground facilities, the project area also includes three separate meter / vault stations operated by the City of Rochester Hills, OCWRC, OMID, and the City of Rochester. The proposed project has been designed horizontally and vertically to avoid negative impacts to the above-mentioned utilities. The proposed design was analyzed as a part of a larger comprehensive study of the E. Avon Rd, Dequindre Rd, and 23 Mile Rd. area. The proposed roundabout and bridge at E. Avon Rd and Dequindre Rd has been designed to match up with future road improvements to E. Avon Rd east of the Clinton River which will occur as a part of the GLWA's planned installation of a 96-inch water main.

Project Compensation: Describe how the proposed impacts to state and federal regulated waters will be compensated, OR explain why compensatory mitigation should not be required for the proposed impacts. Include amount, location, and method of compensation (i.e., bank, on-site, preservation, etc.)
Total wetland impacts within the project area are 0.164 Acres. 1) Complex: Clinton River: Total 0.076 Acres * Scrub-Shrub (Locations 1A, 1B, 1C, 3, 5) • 0.071 Acres * Emergent (Location 4) • 0.005 Acres 2) Complex: Southwest quadrant of Avon Dequindre: Total 0.088 Acres * Emergent (Location 2) • 0.088 Acres 3) The RCOC • Avon Dequindre project has no impact to wetland 6. The total wetland impacts for the project are 0.164 acres. The RCOC proposes to account for any required wetland mitigation with credits at the mitigation site previously constructed in Lyon Oaks County Park (52251 Pontiac Trail, Wixom, MI). Currently there are available acres of emergent wetland credits at Lyon Oaks for the RCOC's use. A cumulative calculation of credit available at Lyon Oaks will be provided upon request. The total 100 year floodplain fill associated with the project is 6420 CYD. The project proposes 6134 CYD of on site floodplain compensating cut.

Upload any additional information as needed to provide information applicable to your project regarding project purpose sequence, methods, alternatives, or compensation.
NONE PROVIDED
Comment
NONE PROVIDED

Resource and Activity Type

Important! Answer all questions completely. Properly identifying your project in this section generates the proper application sections. Incomplete applications will require corrections before they can be fully processed.

SELECT THE ACTIVITIES from the list below that are proposed in your project (check ALL that apply). If you don't see your project type listed, select "Other Project Type". These activities listed require additional information to be gathered later in the application.
Bridges
Intake or Outfall Structures
Utility Crossings - Below Ground

The Proposed Project will involve the following resources (check ALL that apply).
Proposed Wetland Mitigation
100-year Floodplain
Stream or River

Major Project Fee Calculation Questions

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Is filling of 10,000 cubic yards or more proposed (cumulatively) within wetlands, streams, lakes, or Great Lakes?
No

Is dredging of 10,000 cubic yards (cumulatively) or more proposed within streams, lakes, or Great Lakes? (wetlands not included)
No

Is new dredging or adjacent upland excavation in suspected contamination areas proposed by this application?
No

Is a subdivision, condominium, or new golf course proposed?
No

Wetland Project Information and Impacts

PLEASE READ
This section is for entering information regarding the impacts to Wetlands only. Do not input information that pertains to other resources (inland lakes, streams, floodplains, etc.). The initial questions are related to wetlands on the project site in general. The Proposed Activities questions are grouped into Fill, Dredge, Structures, Other and are only for wetland impacts related to these activities.
Click HERE for more information on Wetlands Protection Program.

Has a professional wetland delineation been completed for this site?
Yes

Attach a copy of wetland delineation report with data form.
Avon-Dequindre Wetland Delineation.pdf - 09/09/2020 10:16 AM
REDWOOD Wetland Review (outside RCOC project limits).pdf - 10/02/2020 08:32 AM
Comment
NONE PROVIDED

Total acres of wetland affected by this project.

Category	Affected area (acres)
Permanent	0.164
Temporary	0
	Sum: 0.164

Is filling or draining of 1 acre or more (cumulatively) of wetland proposed?
No

Select all wetland types that will be affected by this project:
Emergent
Scrub-shrub

The following questions gather information on the specific Types of Activities your project includes that will impact WETLANDS. There are four overall Types of Activities: Fill, Dredge, Structure, Other. Under each of the Activity Type questions, specific activity lists will be shown. If the activity is not shown in the list given, select None of the Above and move to the next question. When you select an activity under Fill, Dredge, Structure, or Other, a table will appear under that type. Only enter the dimensions of the activity that are within wetland. Multiple activities covering the same footprint may be combined on one line in the table. Continue to answer the Activity Type questions (Fill, Dredge, Structure, Other) until all have been answered with either a specific Activity listed under that Type or "None of the Above". If you did not find your activity in any list then select "Other, Other" and provide a description of your activity.

If your project includes placing fill in wetland then select the proposed activities from the following list. If your activity is not shown, then select "None of the Above" and move to the next question. Only enter an impacted area in one of the impact tables (do not duplicate impact entries).:
Road - Upgrade/Improvement
Riprap

Complete this table for projects involving Fill. Enter each activity/ location that corresponds with each activity

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selected in the previous question and enter the dimensions. Activities may be entered in one line of the table if they occupy the same impact footprint and cannot be broken out separately (Example: Activity - Driveway and Riprap slope). Multiple activities in different locations should be listed on different lines of the table.

Activity	Length (feet)	Width (feet)	Depth (feet)	Area (square feet)	Volume (cubic feet)	Volume (cubic yards)	Corrected value for complex impact AREAS (square feet)
Riprap Fill	1	2132.563	2	2132.563	4265.126	158	2132.5632
Road Fill	215	46.29	2.5	9952.35	24880.875	922	NONE PROVIDED
				Sum: 12084.913	Sum: 29146.001	Sum: 1080	Sum: 2132.5632

Source of Fill Material:
Off-site
Please Describe
Fill material will be provided by Contractor and must meet MDOT Class II/III requirements.

Type of Fill.
Sand

Is riprap proposed?
Yes
Indicate size range of riprap in inches:
8" - 16" locations outside of River 16"- 36" in Clinton River

Type of riprap
Angular rock

Will material be installed under the riprap?
Yes

Type of material installed under riprap:
Filter fabric

Select from the following list for Excavation/Dredge Activities (if your proposed project is primarily a structure enter the impact as a structure. Only enter an impacted area in one of the impact tables in one impact section):
Excavation (wetlands)

If your project includes EXCAVATION/DREDGE IN WETLAND then select all of the proposed activities in the following list. If your activity is not shown, then select "None of the Above" and move to the next question. Only enter an impacted area in one of the impact tables (do not duplicate impact entries).:

Activity	Length (feet)	Width (feet)	Depth (feet)	Area (sq. feet)	Volume (cubic feet)	Volume (cubic yards)	Corrected value for complex impact AREAS (square feet)
Road Upgrade - Location 1	119	2.2	.5	261.8	130.9	5	NONE PROVIDED
Road Upgrade - Location 2	96	26	.5	2496	1248	46	NONE PROVIDED
				Sum: 2757.8	Sum: 1378.9	Sum: 51	Sum: NaN

Spoils Disposal

Will the excavation/dredge spoils be disposed of on site or off site?
Off-site

Where will the excavation/dredge spoils be disposed of?
Upland site

Describe any measures used to retain sediment:
NONE PROVIDED

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If your project includes STRUCTURES IN WETLAND then select all of the proposed activities in the following list. If your activity is not shown, then select "None of the Above" and move to the next question. Only enter an impacted area in one of the impact tables (do not duplicate impact entries).:
Outfall Structure

Projects involving Structures:

Activity	Length (feet)	Width (feet)	Depth (feet)	Area (Sq. feet)	Volume (cubic feet)	Volume (cubic yards)	Corrected value for complex impact AREAS (square feet)
30" storm outlet - STA 18+16 (ES5)	6	5.5833	3.166	33.4998	106.0603668	4	NONE PROVIDED
18" storm outlet - STA 109+64 (ES8)	6.083	3.75	2.33	22.81125	53.1502125	2	NONE PROVIDED
				Sum: 56.31105	Sum: 159.210579	Sum: 6	Sum: NaN

If your project includes Other Activities in WETLAND not listed in this section, then select from the proposed activities in the following list. If your activity in Wetland has not been listed in this Wetland Section, then select "Other" and enter a description of your activity. Only enter an impacted area in one of the impact tables (do not duplicate impact entries). If you selected a Fill, Excavation/Dredging, or Structure activity above in this section, but do not have an activity listed as Other, then select None of the Above for this question.
Vegetation Removal
Other: Riprap Excavation

Projects involving All other: (Many of these types of projects will not have a depth or volume. In this case, enter "0" in those boxes.)

Activity	Length	Width	Depth	Area	Volume	Volume (cubic yards)	Corrected value for complex impact AREAS (square feet)
Riprap Excavation	1	2132.563	-2	2132.563	-4265.126	-158	2132.5632
				Sum: 2132.563	Sum: -4265.126	Sum: -158	Sum: 2132.5632

Wetland Mitigation
EGLE may impose as a condition of any wetland permit, other than a General permit, a requirement form compensatory mitigation. The wetland mitigation requirement may be waived for projects affecting less than one-third of an acre of wetland if no reasonable opportunity for mitigation exists.

Mitigation plans according to the mitigation checklist (link) are required for a complete application
Wetland Mitigation Information

Is Wetland Mitigation being proposed as part of this proposed project?
Yes

Mitigation Project Details for Wetlands

Impact Location (include identifier on site plan)	Impact Type:	Impact Amount (acres)	Replacement Ratio (include any reduction)	Mitigation Type	Mitigation Amount (acres)	Kind of Mitigation
Wetland Locations 1A, 1B, 1C, 3, 5	Scrub-shrub	.071	1:1	Emergent	.071	Bank
Wetland Locations 2, 4	Emergent	.093	1:1	Emergent	.093	Bank
		Sum: 0.164			Sum: 0.164	

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Wetland mitigation plan or associated documents

NONE PROVIDED

Comment

The total wetland impacts for the project are 0.164 acres. The RCOC proposes to account for any required wetland mitigation with credits at the mitigation site previously constructed in Lyon Oaks County Park (52251 Pontiac Trail, Wixom, MI). Currently there are available acres of emergent wetland credits at Lyon Oaks for the RCOC's use.

Stream Project Information (1 of 1)

Stream Information

This section is for entering information regarding the impacts to a stream only. Do not input information that pertains to other resources (inland lakes, Great Lakes, floodplains, etc.).

If there are multiple streams associated with the project impacts, or different Ordinary High Water Mark (OHWM) elevation data on the stream reach, provide the information in duplicate stream project information tabs by clicking on DUPLICATE at the top right or bottom of this screen.

Elevation data must include a description of the reference point or benchmark used and its corresponding elevation. If elevations are from still water provide the observation date and water elevation. Include information in this section only as it pertains to proposed project activities in regards to impacts to streams.

This section is for entering information regarding the impacts to an Inland Lake only. Do not input information that pertains to other resources (Great Lakes, streams, floodplains, etc.).

Elevation data must include a description of the reference point or benchmark used and its corresponding elevation. If elevations are from still water provide the observation date and water elevation. Information provided in this section should pertain only to proposed activities in regards to Inland Lake impacts.

An OHWM can be determined by either surveyed information or through measurements taken in reference to a static benchmark such as an observed water level or base of a tree, etc. The following information indicates how to determine the OHWM in different situations:

OHWM for Inland Lakes (Part 301) is the line between upland and bottomland identified by the presence of a distinct change in character of the land caused by successive changes in water levels. See EGLE's YouTube Series for OHWM video tutorials, and the sample OHWM drawing for more information.

In Section 10 regulated waters, the U.S. Army Corps of Engineers (USACE) regulates activities below the USACE Great Lakes OHWM elevation.
Determining the Ordinary High Water Mark (OHWM) - Video

Please provide a name for the stream, river, channel:
Clinton River

Stream Water elevation reference* (show elevation on plans with description):
NAVD 88

Ordinary High Water Mark (OHWM) elevation (feet):
669.50

Date of observation (M/D/Y)
9/18/2019

What length (feet) does the project activity(ies) extend waterward of the OHWM?
31.5

What length (feet) does the project activity(ies) extend landward of the OHWM?
1350

Is the drainage area upstream of the proposed project area greater than 2 sq. miles?
Yes

What is the the width (feet) of the stream where the water begins to overflow its banks. This is called the Bankfull width.
63

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Will a turbidity curtain be used during the proposed project?
Yes

If there are multiple streams associated with the project impacts, or different Ordinary High Water Mark (OHWM) elevation data on the stream reach, provide the information in duplicate stream project information tabs by clicking on DUPLICATE or ADD NEW below. This adds a new section where you will enter the information about additional project impacts.

Inland Lakes, Great Lakes and Stream Impacts (1 of 1)

PLEASE READ

This section will collect information regarding Inland Lakes, Great Lakes, and Streams impacts and activities only. The initial questions are related to which waterbody the impacts pertain to. When there are multiple waterbodies (e.g., some impacts are on an inland lake and some impacts are on a stream), fill out a DUPLICATE tab for each waterbody impacted. For each waterbody, questions will be asked regarding the proposed activities. Proposed Activities questions are grouped into Fill, Dredge, Structures, Other and are only for the impacts related to these groups. Click HERE for more information on the Inland Lakes and Streams Protection Program.
Link to information on Inland Lakes and Streams Permitting

The following impact description applies to: (select only one at a time, duplicate this entire section if there are impacts to multiple waterbody types):
Stream

Linear feet of stream affected by your project

Category	Affected linear feet (ft)
Permanent	520
Temporary	0
	Sum: 520

The following questions gather information on the specific Types of Activities your project includes that will impact INLAND LAKES, STREAMS, AND GREAT LAKES. There are four overall Types of Activities: Fill, Dredge, Structure, and Other. Under each of the Activity Type questions, specific activity lists will be shown. If the activity is not shown in the list given, select None of the Above and move to the next question. When you select an activity under Fill, Dredge, Structure, or Other, a table will appear under that type. Only enter the dimensions of the activity that are within INLAND LAKES, STREAMS, or GREAT LAKES. Multiple activities covering the same footprint may be combined on one line in the table. Continue to answer the Activity Type questions (Fill, Dredge, Structure, Other) until all have been answered with either a specific Activity listed under that Type or "None of the Above". If you did not find your activity in any list then select "Other, Other" and provide a description of your activity.

Select from the following list all Fill Activities (select all that apply to this waterbody impacted):
Riprap
Backfill

Complete this table for projects involving Fill below the Ordinary High Water Mark. Enter each activity/ location that corresponds with each activity selected in the previous question and enter the dimensions. Activities may be entered in one line of the table if they occupy the same impact footprint and cannot be broken out separately (Example: Activity - Driveway and Riprap slope). Multiple activities in different locations should be listed on different lines of the table.

Activity	Length (feet)	Width (feet)	Depth (feet)	Area (square feet)	Volume (cubic feet)	Volume (cubic yards	Corrected value for complex impact Areas (square feet)
Riprap	1	5098.02	2	5098.02	10196.04	378	5098.02
				Sum: 5098.02	Sum: 10196.04	Sum: 378	Sum: 5098.02

Type of Fill
Sand

Source of Fill
Off-site

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Is riprap proposed?
Yes
Indicate size range of riprap:
16" or greater

Type of riprap
Other: RCOC Riprap

Will material be installed under the riprap?
Yes

Type of material installed under riprap:
Filter fabric

Activities Involving Dredging or Excavation below the Ordinary High Water Mark: Select from the following list for Excavation/Dredge Activities (select all that apply to this waterbody impacted):
No Dredging/Excavation Proposed

If your project includes STRUCTURES then select all of the proposed activities in the following list. If your activity is not shown, then select "None of the Above" and move to the next question. Only enter an impacted area in one of the impact tables (do not duplicate impact entries).:
Bridge
Retaining Wall

Projects involving Structures constructed below the Ordinary High Water Mark:

Activity	Length (feet)	Width (feet)	Depth (feet)	Area (square feet)	Volume (cubic feet)	Volume (cubic yards)	Corrected value for complex impact AREAS (square feet)
Bridge Fill Abut A	169.42	9.599455	12.6	1626.3396661	20491.87979286	759	NONE PROVIDED
Bridge Excavation Abut A	127.92	27.06517	-12.6	3462.1765464	-43623.424484639996	-1616	NONE PROVIDED
Bridge Fill Abutment B	165.58	8.370112	13.08	1385.9231449600002	18127.874736076803	671	NONE PROVIDED
Bridge Excavation Abutment B	104.5	23.38848	-13.08	2444.09616	-31968.7777728	-1184	NONE PROVIDED
Sheetpile Fill	51.6	1	1	51.6	51.6	2	51.6
				Sum: 8970.135517	Sum: -36920.847729	Sum: -1368	Sum: 51.6

If your project includes Other Activities not listed in this section, then select from the proposed activities in the following list. If your activity has not been listed in this Section, then select "Other" and enter a description of your activity. Only enter an impacted area in one of the impact tables (do not duplicate impact entries). If you selected a Fill, Excavation/Dredging, or Structure activity above in this section, but do not have an activity listed as Other, then select None of the Above for this question.
None of the above

Does the proposed project include mitigation?
none

If there are multiple waterbodies associated with the project impacts, or different Ordinary High Water Mark (OHWM) elevation

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data on the waterbody, provide the information in duplicate stream project information tabs by clicking on DUPLICATE or ADD NEW below. This adds a new section where you will enter the information about additional project impacts.

Intake or Outfall Structures

Is the intake structure associated with an authorized outfall structure?
NONE PROVIDED

Number of intakes or outfalls:
5

Pipe Description

Unique Identifier	Pipe Diameter (inches):	Invert Elevation:
ES3	15	694.08
ES4	30	671.00
ES5	30	669.66
ES7	15	675.35
ES8	18	669.67

Type of intake or outfall stabilization:
End section

Has the water been treated (outfall only)?
No

Bridges and Culverts (1 of 1)

Complete once for a single structure or add multiple sections when multiple structures are proposed.
Use the duplicate button to copy this section to enter information about each individual structure. If there are two or more you should duplicate for each one.

Unique Identifier:
Avon Rd over Clinton River

STREAM INFORMATION

Width of the stream

Upstream (feet)	Downstream (feet)
63	63

Cross-sectional area of primary channel (square feet):
167.37

The width of the stream where the water begins to overflow its banks. Bankfull width (feet):
63

Is there an existing structure?
Yes

Is the existing Structure perched?
No

Click the link below to view bridge profile sample drawings.
Click here for link

Help for the following Table
Structure Width: Enter the total width of culvert or bridge in feet.

Culvert Length or Bridge span: Enter the total length perpendicular or across the stream in feet.

Culvert Height Prior to any burying: Enter the total width of culvert in feet at this location as it measures on land. Do not subtract

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any depth the culvert may be buried. For bridges enter "0".

Depth culvert buried: Enter total feet the culvert bottom will be buried. Does not apply to bridges so enter "0".

Bottom of bridge beam (upstream) elevation (feet): For culverts enter "0".

Bottom of bridge beam (downstream) elevation (feet): For culverts enter "0".

Stream Invert Elevation (feet) Upstream: This is the elevation at the bottom of the culvert as it lies in place after installation on the upstream end of the culvert, not including any fill on the culvert bottom.

Stream Invert Elevation (feet) Downstream: This is the elevation at the bottom of the culvert as it lies in place after installation on the downstream end of the culvert, not including any fill on the culvert bottom.

Bride rise from bottom of beam to streambed or culvert crown height (feet): This is the elevation at the top of the culvert as it lies in place after installation, for bridges this is from the bottom of the beam. Do not including any fill on top of the culvert or the bridge structure.

Total structure waterway area above streambed (square feet): This is the total square foot area that would allow passage of water through the structure opening.

Total structure waterway area below the 100-year elevation (square feet) (if known): This is the total square foot area that would allow passage of water that is below the 100-year flood elevation.

Elevation of road grade at structure (feet): Enter the elevation at the road above the structure.

Elevation of low point in road (feet): Enter the elevation of the lowest point in the road nearest the structure.

Distance from low point of road to mid-point of structure (feet): How far (in feet) from the structure does any fill used for the structure extend before it reaches the existing grade?

Length of approach fill from edge of bridge/culvert to existing grade (feet):

Existing and Proposed Bridge and/or Culvert Information

Question	Existing	Proposed
Structure width (parallel to stream) (feet)	36	94
Culvert length or bridge span (length perpendicular to stream) (feet)	48	66
Height of culvert prior to burying (if bridge enter 0)	0	0
Depth culvert buried (feet) (if bridge enter 0)	0	0
Bottom of bridge beam (feet) upstream (if culvert enter 0)	676.52	676.76
Bottom of bridge beam (feet) downstream (if culvert enter 0)	676.52	676.76
Stream invert elevation at bridge (feet) upstream	659.66	659.66
Stream invert elevation at bridge (feet) downstream	665.09	665.09
Bridge rise from bottom of beam to streambed or culvert crown height (feet)	16.86	17.1
Total structure waterway opening above streambed (square feet)	535.34	772.29
Total structure waterway area below the 100-year elevation (square feet) (if applicable)	535.34	772.29
Elevation of road grade at structure (feet)	679.36	681.25
Elevation of low point in road (feet)	677	676.92
Distance from low point in road (feet)	239.15	217.72
Length of approach fill from edge of bridge/culvert to existing grade (feet)	300	300

Bridge Type:

Existing	Proposed
Concrete box beam	Other: Concrete Bulb Tee Beam

Structure Entrance Design Type:

Existing	Proposed
Wingwalls	Wingwalls

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Certification Upload

ClintonRivermodel.zip - 10/01/2020 12:49 PM

Comment

NONE PROVIDED

Utility Crossings

Select all resource types that are proposed to be crossed by this project:

Stream

How many total stream crossings are proposed?

1

Instructions:

For wetland crossings using the open trench method show clay plugs at the wetland/upland boundaries on plans.

Please identify each individual crossing on proposed project plans.

List of Utility Crossing Impacts

Unique Identifier	Type of Crossing	Method	Utility Type	Length (feet)	Pipe diameter (inches)	Distance below surface (feet)	Trench width (feet)
Prop San Forcemain	Stream	Directional Boring	Sanitary sewer	270	2	5	NONE PROVIDED

Floodplain

Proposed Activity

Fill
Excavation/Cut
Culvert
Stormwater Outfall

100-Year Floodplain Elevation

Please provide a name for the stream, river, channel, or waterbody:	100-Year Floodplain Elevation (feet)	Datum	Source of Datum
Clinton River Upstream	678.41	NAVD88	Hydraulic model
Clinton River Downstream	677.59	NAVD88	Hydraulic model

Excavation/Cut volume below the 100-year floodplain elevation (cubic yards)

0

Fill volume below the 100-year floodplain elevation (cubic yards)

6420

Source of Fill Material:

Off-site

Type of Fill

Sand
Gravel

Calculations Upload

Avon-Dequindre Floodplain Impact Calculations.pdf - 10/05/2020 09:23 AM

Comment

NONE PROVIDED

Is compensating cut provided for this project?

Yes

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Compensating cut volume (cubic yards)
6134

Is this project located in the floodway?
Yes

Were one or more Hydraulic Analyses completed for this project?
Yes

How many Hydraulic Analyses were completed for this project?
1

More information about a hydraulic analysis and when one is needed can be found at:
Click here for link

Click the link below to review the MDEQ Guidelines for Hydraulic Reports.
Link to MDEQ Hydraulic Report Guidelines

Upload a copy of the Hydraulic Report and Associated Files
ClintonRivermodel.zip - 10/02/2020 05:00 PM
Comment
NONE PROVIDED

Local Unit of Government (LUG) Acknowledgement Letter Upload
NONE PROVIDED
Comment
NONE PROVIDED

Is there an existing building on site?
No

Upload of Proposed Site Plans

REQUIRED Application, maps, and drawings:
*Overall Project Site Plan
*Cross-Sectional Drawings

For Part 315 Dam Safety applications attach detailed signed and sealed engineering plans for a Part 315 dam repair, dam alteration, dam abandonment, or dam removal.
Examples site plan and cross-sectional drawings

For additional information on maps, drawings, and other attachments visit michigan.gov/jointpermit

Required on all Site Plan uploads. Please identify that all of the following items are included on your plans that you upload with this application.

Site Plan Features	Existing and Proposed Plan Set
Scale, Compass North, and Property Lines	Yes
Fill and Excavation areas with associated amounts in cubic yards	Yes
Any rivers, lakes, or ponds and associated Ordinary High Water Mark (OHWM)	Yes
Exterior dimensions of Structures, Fill and Excavation areas associated with the proposed project	Yes
Dimensions to other Structures and Lot Lines associated with the project	Yes
Topographic Contour Lines from licensed surveyor or engineer when applicable	Yes

Upload Site Plans and Cross Section Drawings for your Proposed Project
Avon Dequindre EGLE Plans.pdf - 10/16/2020 04:54 PM
Comment
NONE PROVIDED

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Additional Required and Supplementary Documents

Avon-Dequindre Project Impact Calculations.pdf - 10/05/2020 09:18 AM
Bankfull_Measurements_Tech_Memo.pdf - 10/16/2020 10:36 AM
Avon-Dequindre Adjoining Properties.pdf - 10/16/2020 10:36 AM
Mussel Email.pdf - 10/26/2020 09:24 AM
Section 7 email.pdf - 10/26/2020 09:24 AM

Comment
NONE PROVIDED

Fees

The application fee identified in this section is a calculation based on answers to the questions in this application. This calculation is an estimate of the total fee and will be reviewed by the application processor to determine if any additional fees are required for a complete application.

Total Fee Amount:
$0.00

Is the applicant or landowner a State of Michigan Agency?
No

Status History

	User	Processing Status
9/2/2020 10:44:03 AM	Adam Rychwalski	Draft
10/26/2020 9:37:28 AM	David Conn	Submitted

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Expires On:12/22/2025

INDEX OF SHEETS

ROAD COMMISSION FOR OAKLAND COUNTY
IN CO–OPERATION WITH
MICHIGAN DEPARTMENT OF TRANSPORTATION
AND
FEDERAL HIGHWAY ADMINISTRATION

MDOT CONTROL SECTION NH 63000
MDOT JOB 207705
RCOC NO: 55233

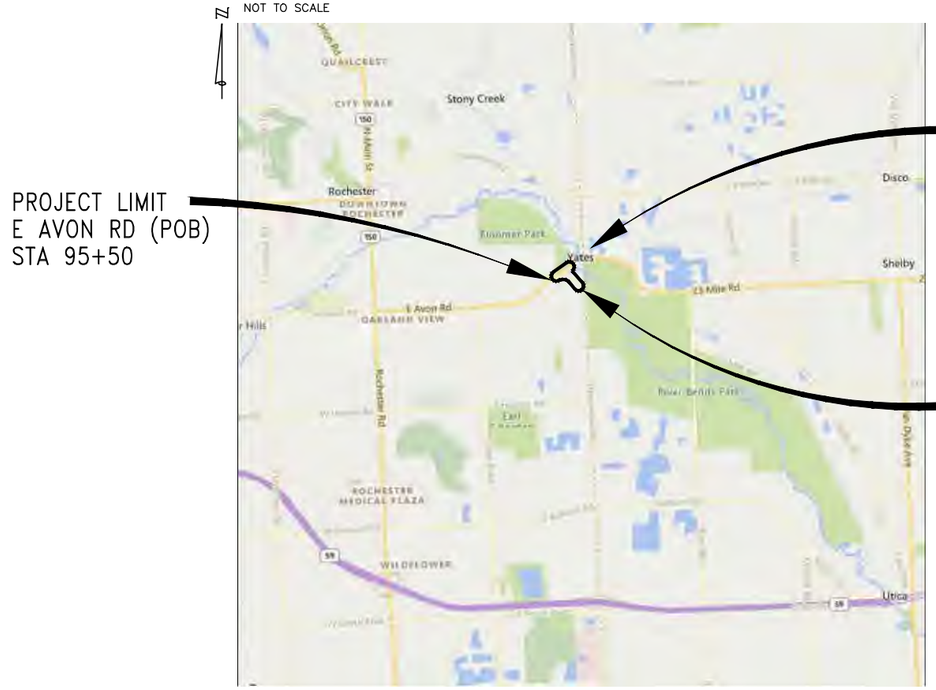
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

ROCHESTER HILLS

SCALE

	FULL SIZE (22"x34")	HALF SIZE (11"x17")
PLAN SHEET	1"=30 FT.	1"=60 FT.
PROFILE HOR.	1"=30 FT.	1"=60 FT.
PROFILE VER.	1"= 3 FT.	1"= 6 FT.

NOT TO SCALE



10/15/2020
EGLE PLANS

OHM

GENERAL PROVISIONS

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE PROPOSAL AND ACCOMPANYING SPECIFICATIONS FOR THIS PROJECT INCLUDING THE 2020 MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND A.A.S.H.T.O.; A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, 2011.

PAVEMENT MARKING AND PLACING OF TRAFFIC CONTROL SIGNS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, 2011 EDITION. THIS WORK WILL BE DONE PRIOR TO THE FINAL ACCEPTANCE OF THIS PROJECT.

THE LOCATION OF ALL PUBLIC UTILITIES SHOWN ON THESE PLANS IS TAKEN FROM THE BEST AVAILABLE DATA. THE BOARD OF ROAD COMMISSIONERS FOR OAKLAND COUNTY WILL NOT BE RESPONSIBLE FOR ANY OMISSION OR VARIATIONS FROM THE LOCATIONS SHOWN. PURSUANT TO ACT 53 OF THE PA OF 1974 AS A CONDITION OF THIS CONTRACT, A MINIMUM 3 DAYS NOTICE, SHALL BE GIVEN TO MISS DIG PRIOR TO UNDERGROUND WORK TO BE PERFORMED IN ACCORDANCE WITH THIS CONTRACT. PHONE (800)–482–7171 OR (800)–482–7161 OR 811.

THE ROAD COMMISSION FOR OAKLAND COUNTY, AS AN AUTHORIZED PUBLIC AGENCY UNDER THE EROSION AND SEDIMENTATION CONTROL PROGRAM–PUBLIC ACT 347, HAS PROVIDED FOR EROSION AND SEDIMENTATION CONTROL BY MEANS OF SODDING, SEEDING AND OTHER METHODS. THE ROAD COMMISSION WILL MAINTAIN THESE FACILITIES UPON COMPLETION OF THE CONTRACT.

THE DATUMS FOR PLANS ARE BASED ON – HORIZONTAL: NAD83 (2007) – SPCS MICHIGAN SOUTH
– VERTICAL: NAVD88 (GEOID03)

THE DESIGN OF THIS STRUCTURE IS BASED ON 1.2 TIMES THE CURRENT AASHTO LRFD BRIDGE DESIGN SPECIFICATION HL–93 LOADING WITH THE EXCEPTION THAT THE DESIGN TANDEM PORTION OF THE HL–93 LOAD DEFINITION SHALL BE REPLACED BY A SINGLE 60 KIP AXLE LOAD BEFORE APPLICATION OF THIS 1.2 FACTOR. THE RESULTING LOAD IS DESIGNATED HL–93 MOD. LIVE LOAD PLUS DYNAMIC LOAD ALLOWANCE DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH.

ROAD COMMISSION FOR OAKLAND COUNTY
IN COOPERATION WITH
MICHIGAN DEPARTMENT OF TRANSPORTATION
AND
FEDERAL HIGHWAY ADMINISTRATION

PROJECT NO. 55233 (RCOC) CITY/TWP LYON CHARTER TOWNSHIP
LOCATION EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER
CONTRACT FOR RECONSTRUCTION OF 0.47 MILES OF ROADWAY INCLUDING BRIDGE OVER THE CLINTON RIVER, ASPHALT AND CONCRETE PAVEMENT, SIDEWALK, CURB AND GUTTER, STORM SEWER, GRADING, SHEET PILE, PAVEMENT MARKINGS, HAWK SIGNALS, AND MODERN ROUNDABOUT AT THE EAST AVON ROAD AND DEQUINDRE ROAD INTERSECTION.

TRAFFIC DATA

	TOTAL A.D.T.				
	2021	2041	% COMMERCIAL	DESIGN SPEED	POSTED SPEED
EAST AVON ROAD	18,800	19,550	2%	45 MPH	40 MPH
DEQUINDRE ROAD	10,820	13,200	2%	50 MPH	45 MPH

BOARD OF COUNTY ROAD COMMISSIONERS
GREGORY C. JAMIAN – CHAIRMAN
RON FOWKES – VICE CHAIRMAN
ANDREA LALONDE – COMMISSIONER
DENNIS G. KOLAR – MANAGING DIRECTOR

PREPARED UNDER THE SUPERVISION OF:

JOHN KATERS, P.E. DATE
ORCHARD, HILTZ, AND MCCLIMENT, INC.

RCOC APPROVAL:

GARY PIOTROWICZ, PE, PTOE DATE
COUNTY HIGHWAY ENGINEER/
DEPUTY MANAGING DIRECTOR

RCOC APPROVAL:

SAMUEL FITZER, P.E. DATE
ROAD COMMISSION FOR OAKLAND COUNTY

JEFFERY O'BRIEN, P.E. DATE
ROAD COMMISSION FOR OAKLAND COUNTY

REVISIONS	RECOMMENDED FOR APPROVAL		APPROVED	
DESCRIPTION	BY	DATE	BY	DATE

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WRP026870 v1.0
Approved
Issued On:12/22/2020
Expires On:12/22/2025

EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER
PROJECT NO. 0170–19–0060

WATER & SEWER UTILITY SYMBOLS

EXISTING

- ST — STORM MANHOLE
- SQUARE CATCH BASIN
- ROUND CATCH BASIN
- CULVERT
- CULVERT W/O END SECTION
- CULVERT W/END SECTION
- S — SANITARY MANHOLE
- CO — CLEAN OUT
- GW — GATE VALVE & WELL
- GATE VALVE & BOX
- W — WATER STOP BOX
- FIRE HYDRANT
- MP — METER PIT
- WATER METER
- SH — SPRINKLER HEAD
- IRRIGATION VALVE

PROPOSED

- STORM MANHOLE
- INLET/CATCH BASIN
- CULVERT END SECTION
- SANITARY MANHOLE
- GV&W — GATE VALVE & WELL
- GV&B — GATE VALVE & BOX
- TSV&W — TAPPING SLEEVE VALVE & WELL
- TSV&B — TAPPING SLEEVE VALVE & BOX
- FIRE HYDRANT

REAL ESTATE SYMBOLS

- CONTIGUOUS PROPERTY SYMBOL
- XX — PARCEL NUMBER BOX
- NO ROW IMPACTS

MISCELLANEOUS UTILITY SYMBOLS

EXISTING

- GUY WIRE
- GP — GUY POLE
- U — UTILITY POLE
- U — UTILITY POLE W/LIGHT
- LIGHT/DECOR LAMP POLE
- F — FLOOD LIGHT
- GAS VALVE
- G — GAS VENT
- G — GAS METER
- G — GAS RISER
- TRAFFIC SIGNAL
- P — PEDESTRIAN RISER
- E — TRANSFORMER PAD
- U — PRIVATE UTILITY MANHOLE
- R R — RAILROAD CROSSING
- E — ELECTRIC METER
- PB — PHONE BOOTH
- TS — TRAFFIC SIGNAL CONTROLLER
- HAND HOLE
- SIG — SIGNAL PUCK
- E — ELECTRIC RISER
- T — TELEPHONE RISER
- C — CABLE TV RISER
- W — MONITORING WELL
- UNDERGROUND MARKER

PROPOSED

- ROADWAY LIGHT POLES
- PEDESTRIAN LIGHT POLES
- HAWK SIGNAL POLES W/LIGHT

MISCELLANEOUS SYMBOLS

EXISTING

- RIPRAP
- SIGN
- FLOW DIRECTION
- STUMP
- WETLAND
- CONIFEROUS TREE — CL 1 1" TO 5", CL 2 6" TO 17", CL 3 18" TO 35", CL 4 36" AND UP
- DECIDUOUS TREE — CL 1 1" TO 5", CL 2 6" TO 17", CL 3 18" TO 35", CL 4 36" AND UP
- CONIFEROUS SHRUB
- DECIDUOUS SHRUB
- SB# — SOIL BORING
- SECTION CORNER
- MON — MONUMENT
- IRON ROD/PIPE
- PK — PK NAIL
- BM# — BENCHMARK
- TP# — TRAVERSE POINT
- MAIL/NEWSPAPER BOX
- FP — FLAG POLE
- POST
- HAZARDOUS OR FLAMMABLE MATERIAL — USED WITH UNDERGROUND GAS & ELECTRICAL LINES
- CAUTION – CRITICAL UNDERGROUND UTILITY — USED WITH TELEPHONE & FIBER OPTIC LINES

PROPOSED

- RIPRAP
- SIGN
- FLOW DIRECTION
- XX XX XXX — STRUCTURE NUMBER WM SAN STM
- DETECTABLE WARNING SURFACE
- 29 — SOIL EROSION CONTROL ITEM

UTILITY PATTERN

EXISTING

- ELEC — ELECTRICAL *
- 6" (COMPANY) GAS — GAS\OIL
- (COMPANY) CABLE/TEL — CABLE/TELEPHONE *
- FIBER OPTIC — FIBER OPTIC *
- 12" WM — WATER
- 12" SAN — SANITARY
- 12" STM — STORM

PROPOSED

- 12" — STORM/SANITARY/WATER
- CONDUIT
- 12" — PRIMARY UTILITY WILL HAVE A CONTINUOUS LINESTYLE, WITH THE SECONDARY UTILITY MATCHING ITS RESPECTIVE EXISTING UTILITY LINESTYLE

*OH = OVERHEAD , UG = UNDERGROUND

ROW PATTERN

EXISTING

- ROW — ROW
- PROPERTY/PARCEL

PROPOSED

- HIGHWAY EASEMENT
- ROW
- TEMPORARY EASEMENT
- DRIVEWAY GRADING LICENSE

TOPO PATTERN

EXISTING

- HEDGE/TREE
- FENCE
- GUARDRAIL
- CENTERLINE OF DITCH
- RAILROAD
- WETLAND/EDGE OF WATER

PROPOSED

- GRADING LIMIT (SLOPE STAKE)
- CENTERLINE OF DITCH
- FENCE
- EDGE OF GRAVEL

REMOVAL LEGEND

- SIDEWALK, REM
- HMA SURFACE, REM
- PAVT, REM
- HMA SURFACE REMOVAL & PAVEMENT REMOVAL
- CLEARING, RCOC
- CURB AND GUTTER, REM FENCE, REM
- GUARDRAIL, REM
- TREE, REM
- S-XXXXXX — SALVAGE
- B-XXXXXX — BULKHEAD
- A-XXXXXX — ABANDON
- R-XXXXXX — REMOVE
- R/C-XXXXXX — REMOVE, PAID AS CLEARING
- ADJ-XXXXXX — ADJUST
- REL-XXXXXX — RELOCATE
- REC-XXXXXX — RECONSTRUCT
- R B/O-XXXXXX — REMOVE BY OTHERS
- ADJ B/O-XXXXXX — ADJUST BY OTHERS
- REL B/O-XXXXXX — RELOCATE BY OTHERS

IF NECESSARY FOR CLARITY

- (S) — SALVAGE
- (B) — BULKHEAD
- (A) — ABANDON
- (C) — CLEARING
- (R) — REMOVE
- (REL) — RELOCATE
- (REC) — RECONSTRUCT
- (REL B/O) — RELOCATE BY OTHERS
- (ADJ B/O) — ADJUST BY OTHERS

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ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

LEGEND

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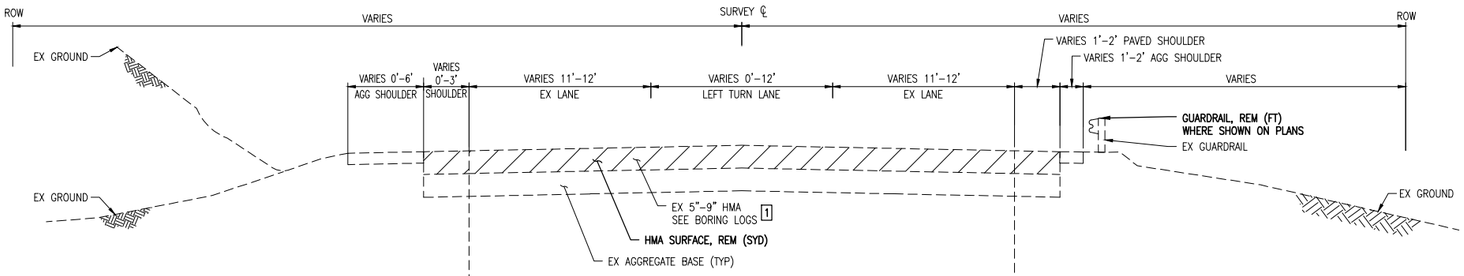
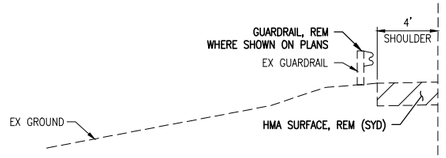
NOTE: ALL STATION RANGES FOR EXISTING TYPICALS ON THIS SHEET ARE REFERENCED OFF SURVEY ℄

APPLIES: STA 301+14 TO STA 308+19
STA 311+08 TO STA 312+44
STA 203+04 TO STA 207+72



APPLIES: STA 302+45 TO STA 307+14
STA 309+63 TO STA 310+37
STA 204+34 TO STA 208+50

APPLIES: STA 308+19 TO STA 309+13
STA 309+63 TO STA 311+08



EXISTING CROSS SECTION

APPLIES: SURVEY ℄
STA 301+14 TO STA 309+13
STA 309+63 TO STA 312+44
STA 203+04 TO STA 208+50

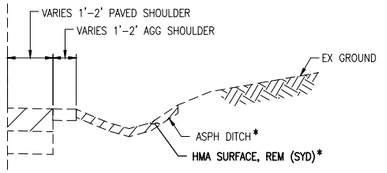
NOTE: SEE PROPOSED TYPICALS FOR TOPSOIL STRIPPING INFORMATION

[1] EXISTING HMA PAVT DEPTHS ARE <12" BASED ON POINT INFORMATION FROM RECENTLY OBTAINED PAVT CORES. PAVT DEPTHS ARE FOR INFORMATION ONLY. THE CONTRACTOR SHALL NOT BE PAID EXTRA FOR HMA SURFACE, REM FOR THOSE DEPTHS THAT EXCEED THE DEPTHS LISTED IN THE TYPICAL CROSS SECTION. IF THE EX PAVT DEPTH EXCEEDS 12 INCHES, THE CONTRACTOR WILL BE PAID PER SECTION 501.04 OF THE 2012 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

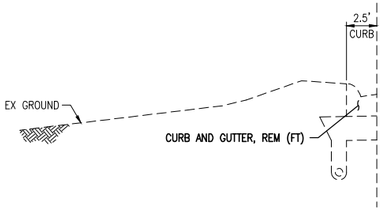
NOTES:

REMOVE EXISTING UNDERDRAINS WHERE EXISTING CURB AND GUTTER AND/OR EXISTING PAVMENT IS BEING REMOVED. THE COST OF THIS WORK IS INCLUDED IN THE ITEM EXCAVATION, EARTH (CYD)

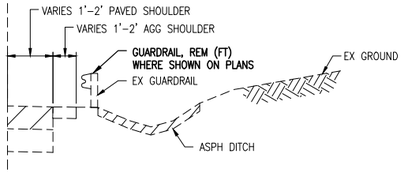
APPLIES: STA 301+14 TO STA 301+88 *
STA 203+04 TO STA 204+16



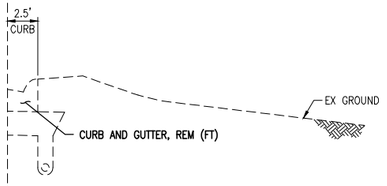
APPLIES: STA 207+72 TO STA 208+50



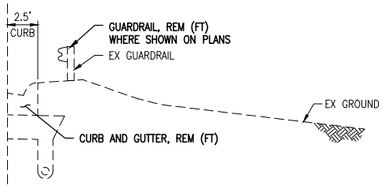
APPLIES: STA 301+88 TO STA 302+45



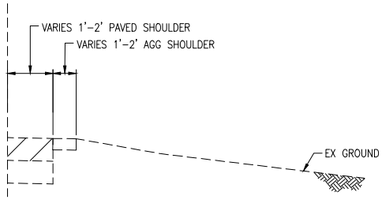
APPLIES: STA 307+14 TO STA 308+50



APPLIES: STA 308+50 TO STA 309+13



APPLIES: STA 310+37 TO STA 312+45
STA 204+16 TO STA 204+34



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ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER
TYPICAL CROSS SECTIONS

SHEET 3 OF 38

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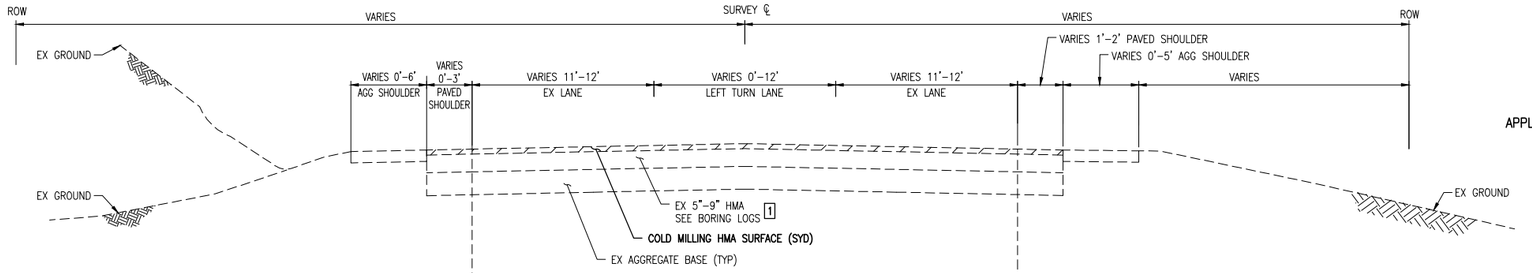
NOTE: ALL STATION RANGES FOR EXISTING TYPICALS ON THIS SHEET ARE REFERENCED OFF SURVEY ℄

APPLIES: STA 295+64 TO STA 296+90
STA 299+24 TO STA 301+14



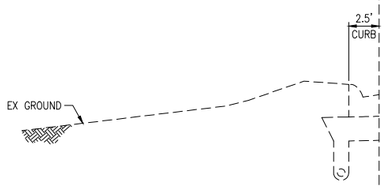
APPLIES: STA 295+65 TO STA 295+90

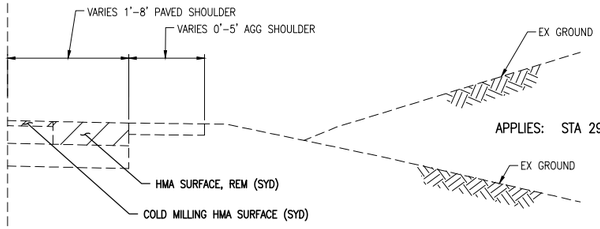
EXISTING CROSS SECTION

APPLIES: SURVEY ℄
STA 295+64 TO STA 301+14

NOTE: SEE PROPOSED TYPICALS FOR TOPSOIL STRIPPING INFORMATION

APPLIES: STA 296+90 TO STA 299+14





APPLIES: STA 295+90 TO STA 301+14

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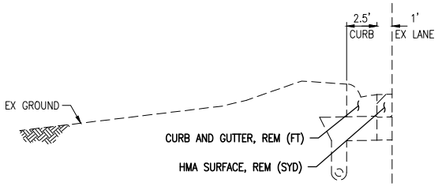
APPLIES: STA 299+14 TO STA 299+24



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10/15/2020	0170-19-0060	DC	JK	JW	OAKLAND	ROCHESTER HILLS	H: 1"=5' V:	NAD83 (2007)	NAVD88 (GEOID12B)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

TYPICAL CROSS SECTIONS

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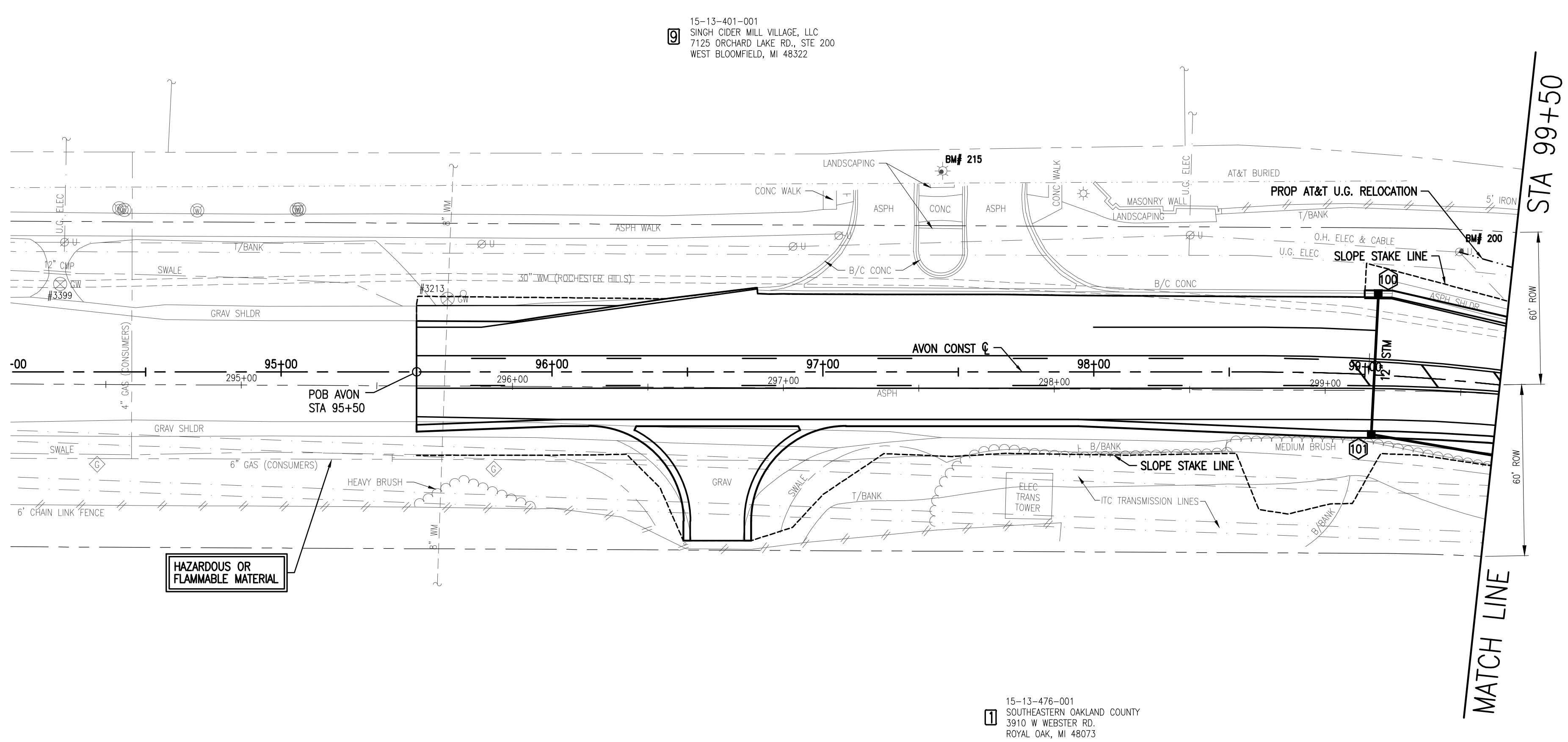
JOB BENCHMARK #200
SET GEAR SPIKE IN SE FACE OF POWER POLE. NORTH SIDE OF AVON, 2ND POLE EAST OF CIDER MILL BLVD
ELEV 734.57

JOB BENCHMARK #201
SET GEAR SPIKE IN NORTH FACE OF POWER POLE @ 1750 AVON ON SOUTH SIDE OF ROAD
ELEV 683.95

TRAVERSE POINT #100
N 429289.97
E 13464173.29 ELEV 716.33

TRAVERSE POINT #101
N 429401.16
E 13464570.43 ELEV 690.19

AVON RD



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10/15/2020	0170-19-0060	DC	JK	JM	OAKLAND	ROCHESTER HILLS	H: 1"=30' V: 1"=4'	NAD83 (2007)	NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER
CONSTRUCTION PLAN

SHEET 5 OF 38

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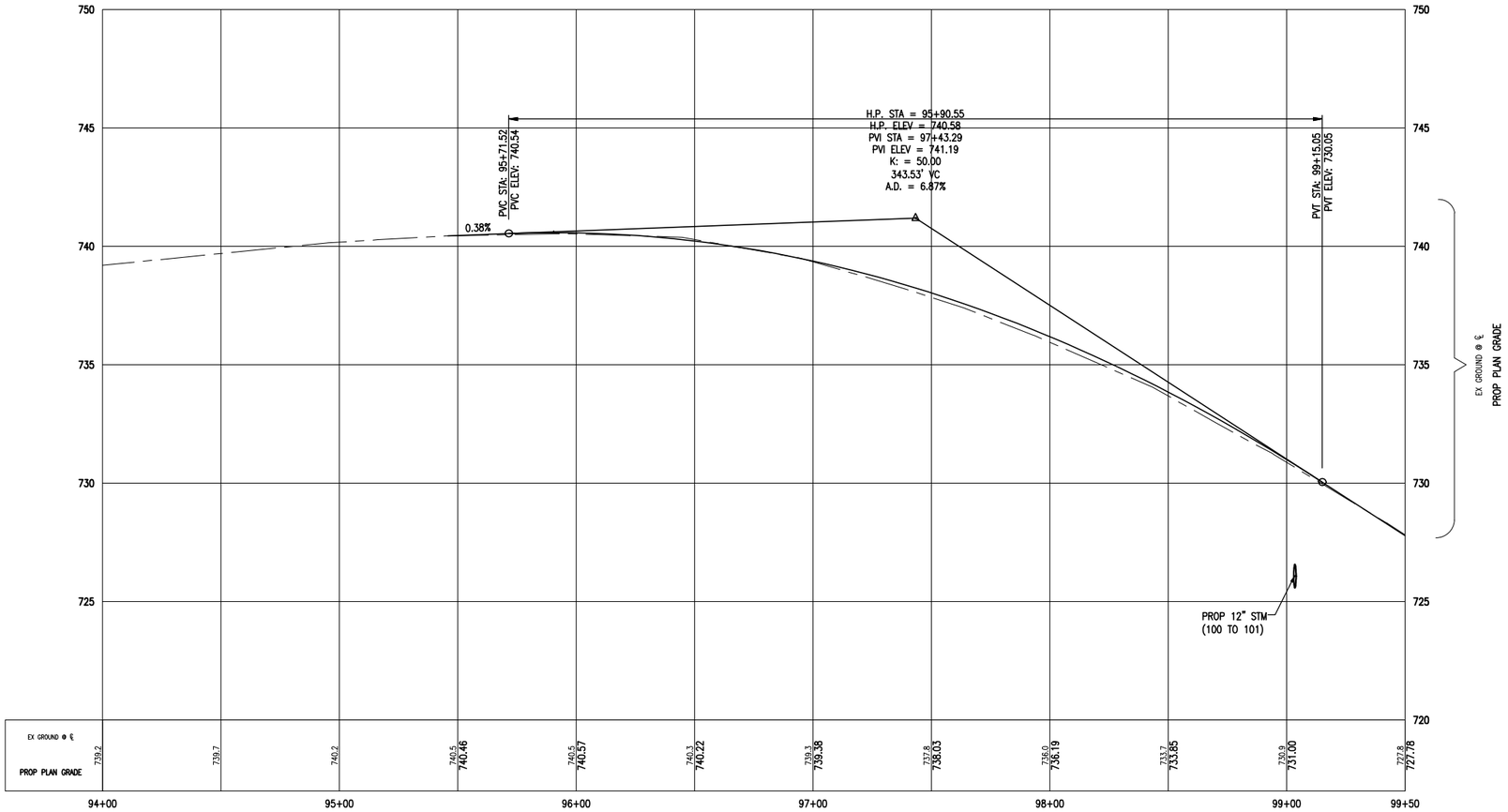

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10/15/2020	0170-19-0060	DC	JK	JM	OAKLAND	ROCHESTER HILLS	H: 1"=40' V: 1"=4'	NAD83 (2007)	NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY

EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

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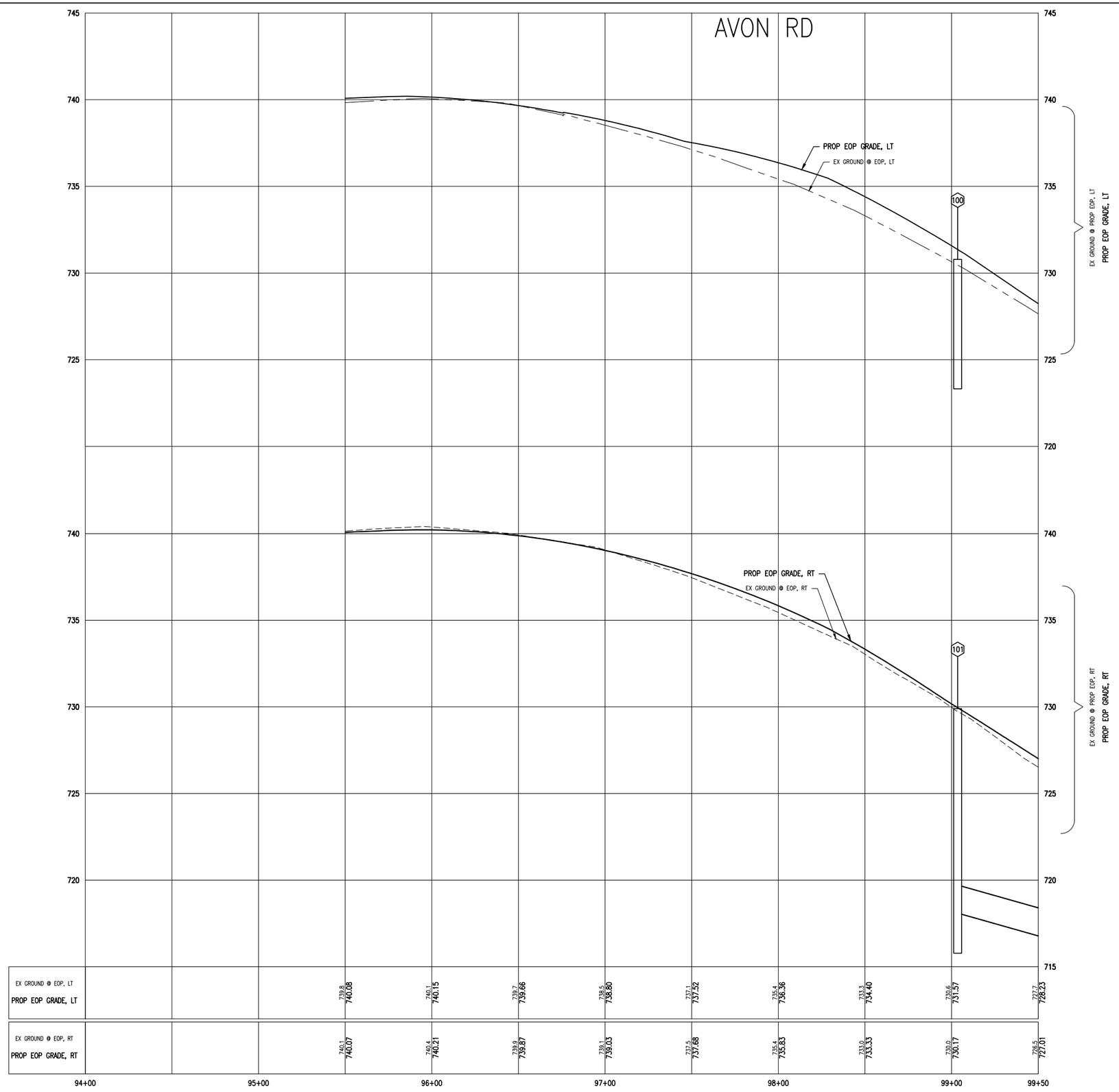

100 STA 99+03.50, 29.9' L
24" DIA CATCH BASIN, COVER J
T/CAST 730.78
12" INV SE 725.82

101 STA 99+03.50, 22.0' R
48" DIA CATCH BASIN, COVER J
T/CAST 729.90
15" INV NE 718.28
12" INV NW 725.40

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ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER
PROFILE - LEFT & RIGHT

SHEET 7 OF 38

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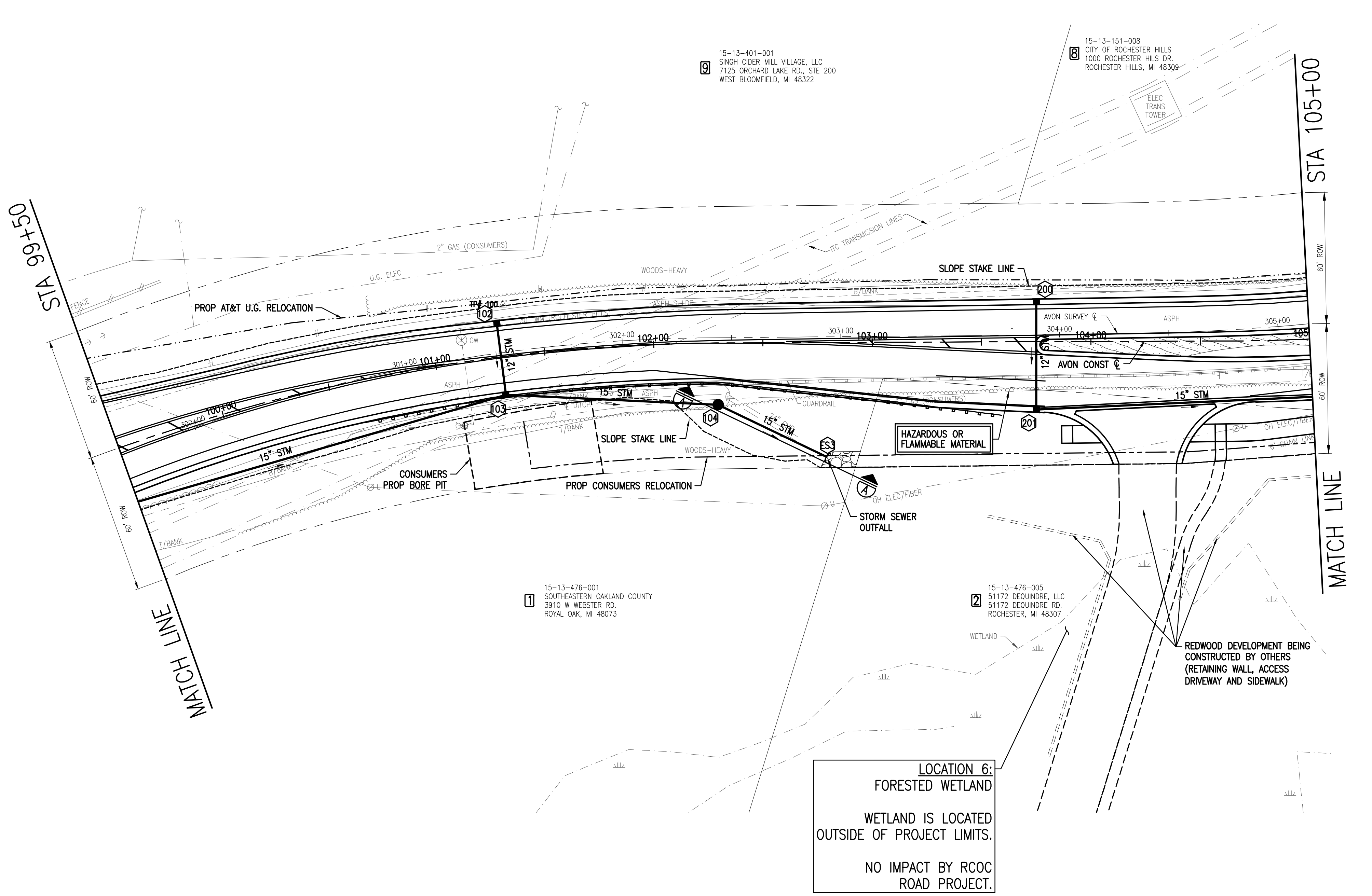
JOB BENCHMARK #200 SET GEAR SPIKE IN SE FACE OF POWER POLE. NORTH SIDE OF AVON, 2ND POLE EAST OF CIDER MILL BLVD ELEV 734.57	
JOB BENCHMARK #201 SET GEAR SPIKE IN NORTH FACE OF POWER POLE @ 1750 AVON ON SOUTH SIDE OF ROAD ELEV 683.95	
TRAVERSE POINT #100 N 429289.97 E 13464173.29	ELEV 716.33
TRAVERSE POINT #101 N 429401.16 E 13464570.43	ELEV 690.19

AVON RD



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10/15/2020	0170-19-0060	DC	JK	JM	OAKLAND	ROCHESTER HILLS	H: 1"=30' V: 1"=3'	NAD83 (2007)	NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

CONSTRUCTION PLAN

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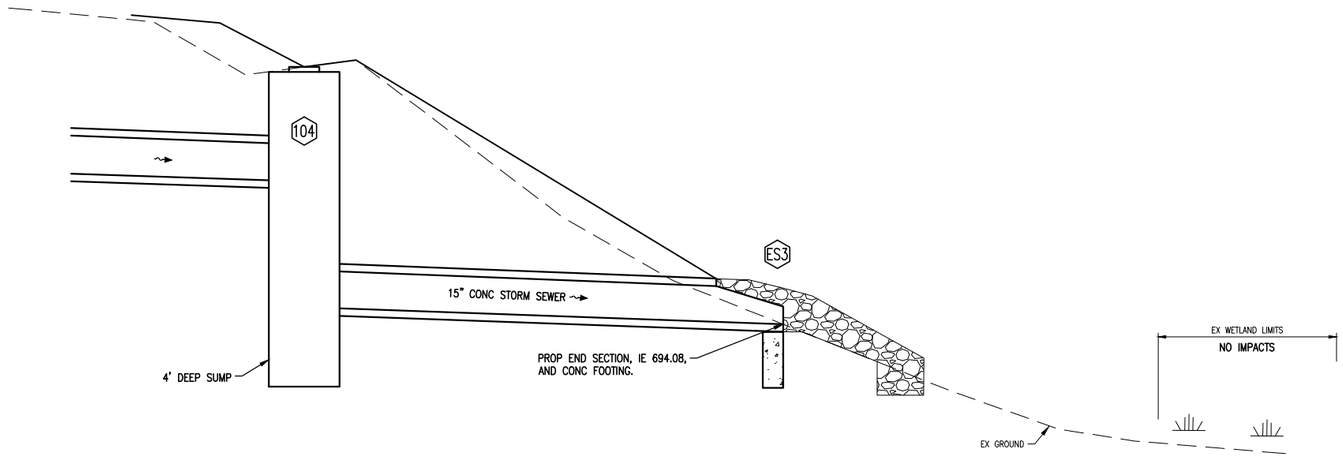

(A–A) PROPOSED CROSS SECTION

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10/15/2020	0170-19-0060	DC	JK	JM	OAKLAND	ROCHESTER HILLS	H: NTS	V: NTS	NAD83 (2007)	NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

STORM SEWER OUTLET SECTION

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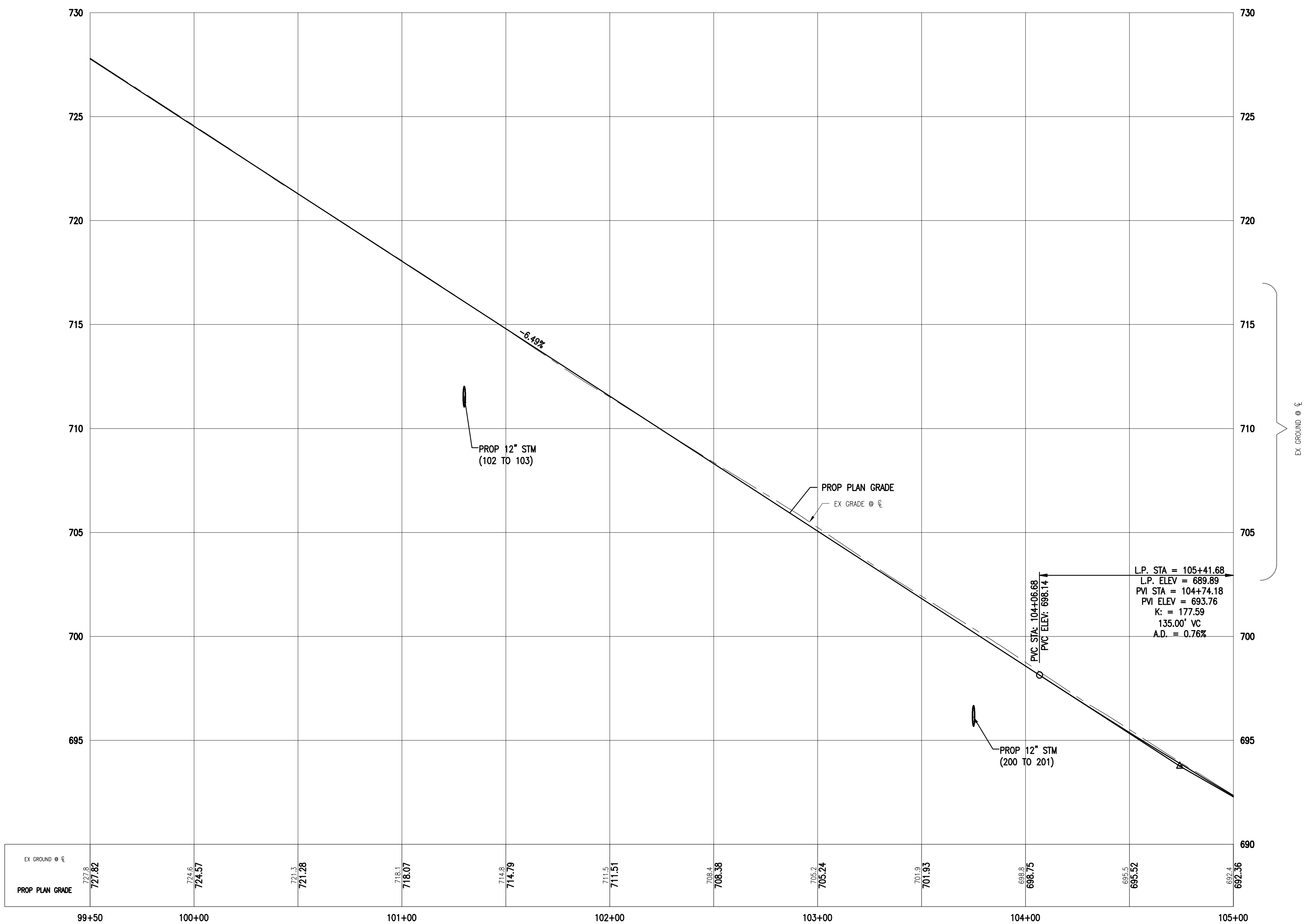

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ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

PROFILE - CENTER

SHEET 10 OF 38

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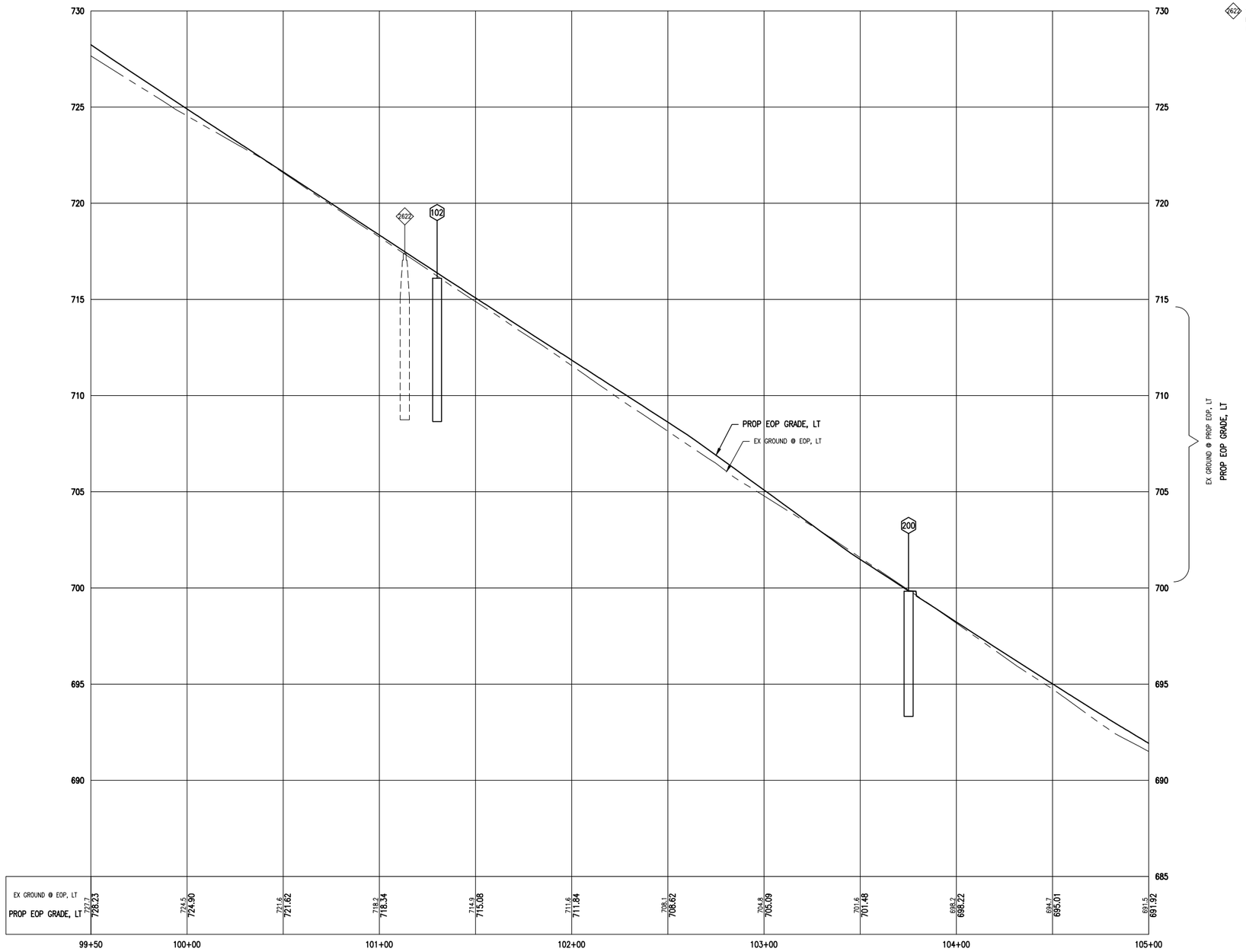
Issued On:12/22/2020
Expires On:12/22/2025

AVON RD



2622 STA 101+13.18, 9.9' L
EX WM GATE WELL
T/CAST 717.37

102 STA 101+30.00, 15.4' L
24" DIA CATCH BASIN, COVER J
T/CAST 716.10
12" INV SE 711.15

200 STA 103+75.10, 18.3' L
24" DIA CATCH BASIN, COVER J
T/CAST 699.83
12" INV S 695.82

EX GROUND @ PROP EOP, LT
PROP EOP GRADE, LT

OHM
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34000 Plymouth Road
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REVISIONS:

DATE: 10/15/2020 | PROJ NUMBER: 0116-19-0060 | ENG: DC | PROJ MGR: JK | CADD: JM | COUNTY: OAKLAND | CITY/VILLAGE/TOWNSHIP: ROCHESTER HILLS | SCALE: H: 1"=40' V: 1"=4' | HORIZ DATUM: MI83 (2007) | VERT DATUM: NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

PROFILE - LEFT

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SHEET 11 OF 38

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EGLE WRD
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Issued On:12/22/2020
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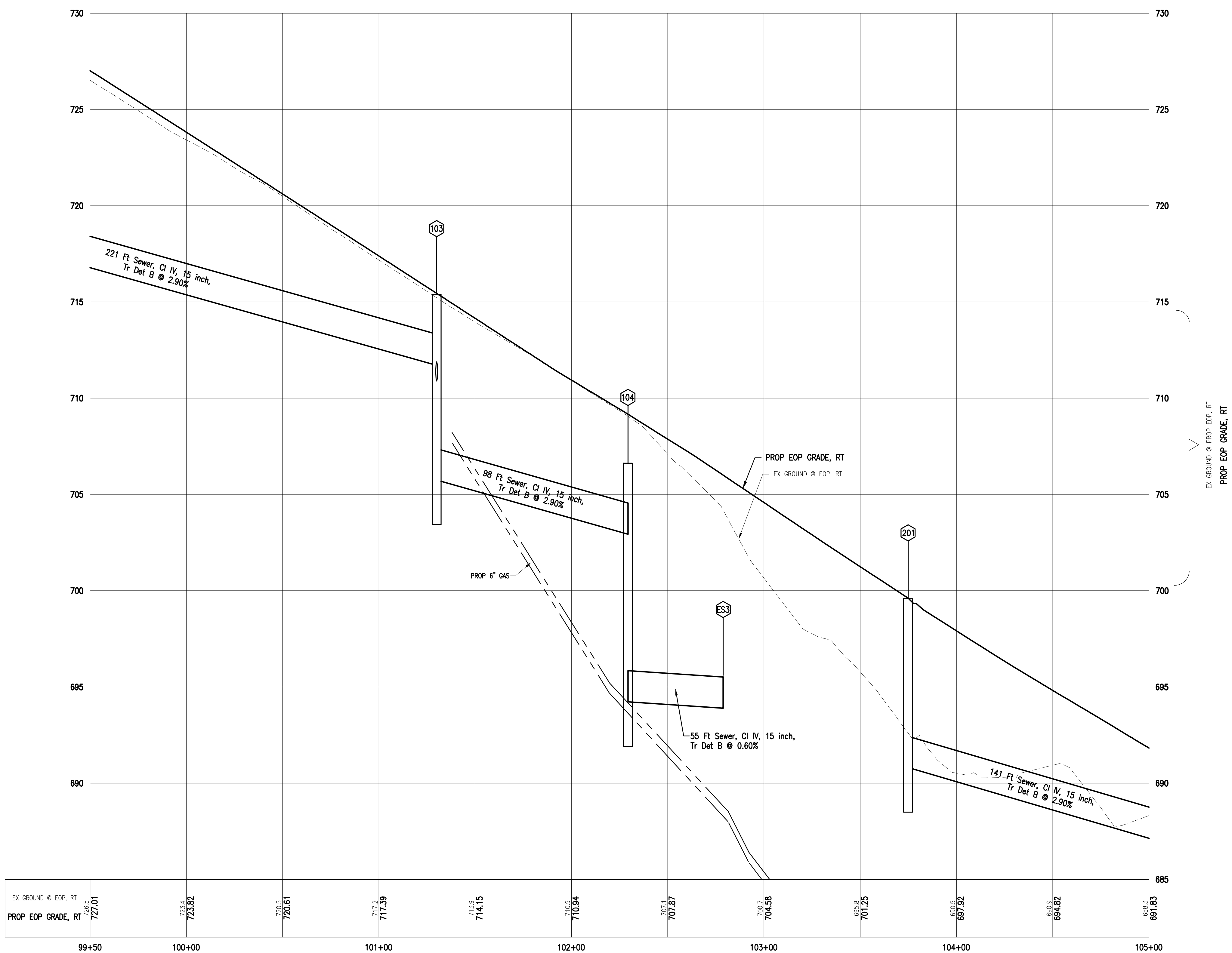
AVON RD



103 STA 101+30.03, 17.5' R
48" DIA CATCH BASIN, COVER J
T/CAST 715.39
15" INV SW 711.89
15" INV E 705.94
12" INV NW 710.89

104 STA 102+29.37, 28.2' R
48" DIA CATCH BASIN, COVER G
T/CAST 706.63
15" INV W 703.12
15" INV E 694.41

ES3 STA 102+78.86, 52.2' R
15" CULV END SECTION
T/CAST 695.60
15" INV W 694.08

201 STA 103+74.88, 31.0' R
48" DIA CATCH BASIN, COVER J
T/CAST 699.58
12" INV N 695.43
15" INV E 691.00

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ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

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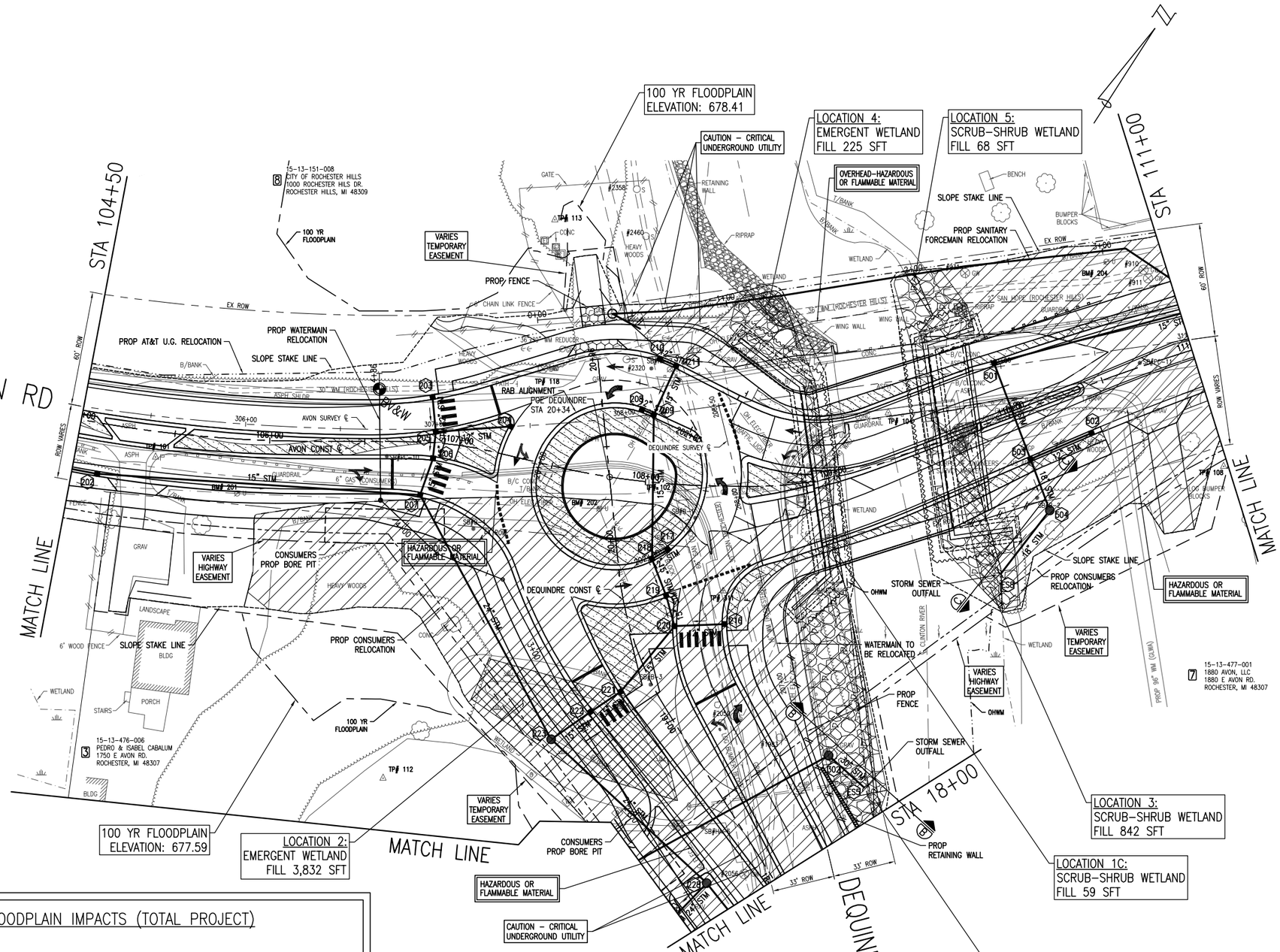
JOB BENCHMARK #201 SET GEAR SPIKE IN NORTH FACE OF POWER POLE @ 1750 AVON ON SOUTH SIDE OF ROAD ELEV 683.95
JOB BENCHMARK #202 SET GEAR SPIKE IN NORTH FACE OF POWER POLE W/TRAFFIC LIGHT @ SW QUAD OF AVON/DEQUINDRE INT ELEV 678.22
JOB BENCHMARK #204 FOUND BENCH TIE ON S FACE OF POLE ON N SIDE OF DEQUINDRE, FIRST POLE EAST OF BRIDGE ELEV 674.28
TRAVERSE POINT #101 N 429401.16 E 13464570.43 ELEV 690.19
TRAVERSE POINT #102 N 429534.13 E 13464809.26 ELEV 679.04
TRAVERSE POINT #104 N 429629.84 E 13464882.25 ELEV 679.93
TRAVERSE POINT #113 N 429620.16 E 13464679.51 ELEV 678.59



100–YEAR FLOODPLAIN IMPACTS (TOTAL PROJECT)

UPSTREAM: ELEV. = 678.41 (HYDRAULIC MODEL)
DOWNSTREAM: ELEV. = 677.59 (HYDRAULIC MODEL)

FILL BELOW 100–YEAR FLOOPLAIN = 6420 CYD
COMPENSATING CUT BELOW 100–YEAR FLOOPLAIN = 6134 CYD

NET 100–YEAR FLOOPLAIN FILL = 286 CYD

LEGEND

- WETLANDS FILL
- IMPACTS WITHIN 100 YR FLOODPLAIN (DRAINAGE AREA OVER 2 SQ MILES)
- RIP RAP

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REVISIONS:

DATE 01/15/2020 | PROJ NUMBER 0170-180080 | ENG DC | PROJ MGR JK | CADD JM | COUNTY OAKLAND | CITY/VILLAGE/TOWNSHIP ROCHESTER HILLS | SCALE H: 1"=50' V: 1"=5' | HORZ DATUM NAD83 (2007) | VERT DATUM NAVD88 (GEOID12)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

CONSTRUCTION PLAN

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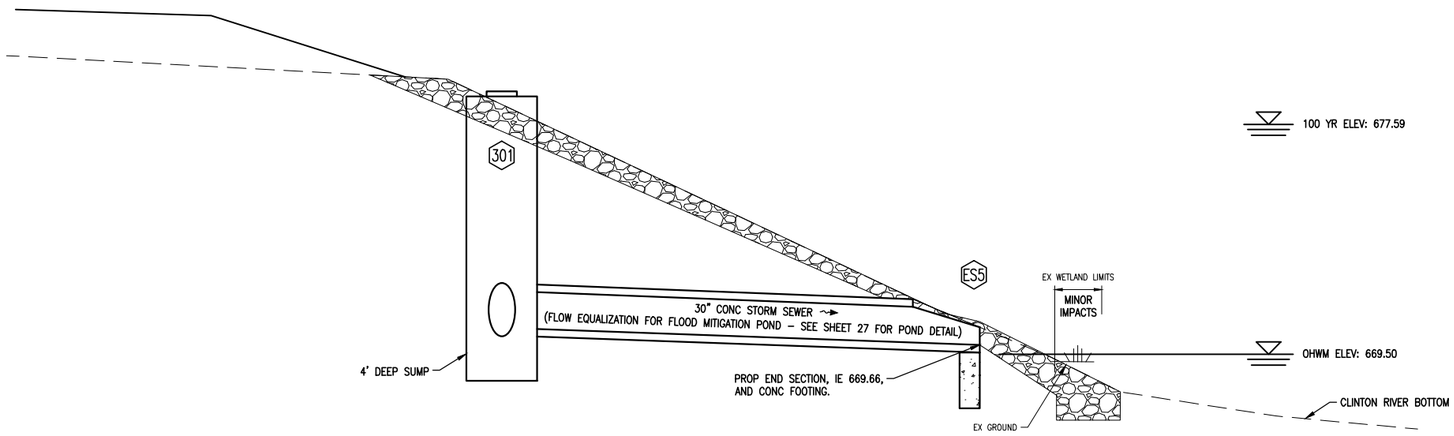
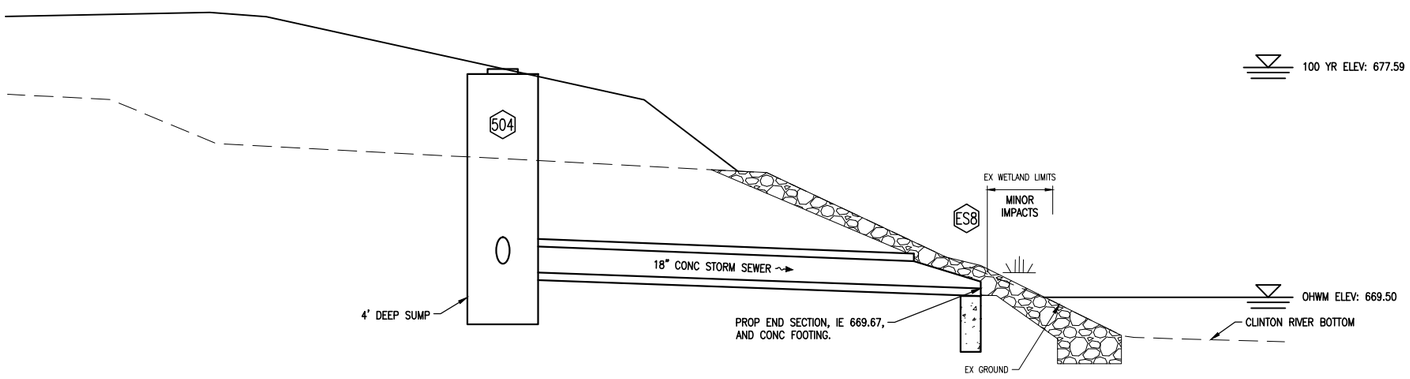


B–B PROPOSED CROSS SECTION



C–C PROPOSED CROSS SECTION

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REVISIONS:

DATE	PROJ NUMBER	DRG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	HORIZ DATUM	VERT DATUM
10/15/2020	0170-19-0060	DC	JK	JM	OAKLAND	ROCHESTER HILLS	H: NTS V: NTS	NAD83 (2007)	NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER
STORM SEWER OUTLET SECTION

SHEET 14 OF 38

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Issued On:12/22/2020
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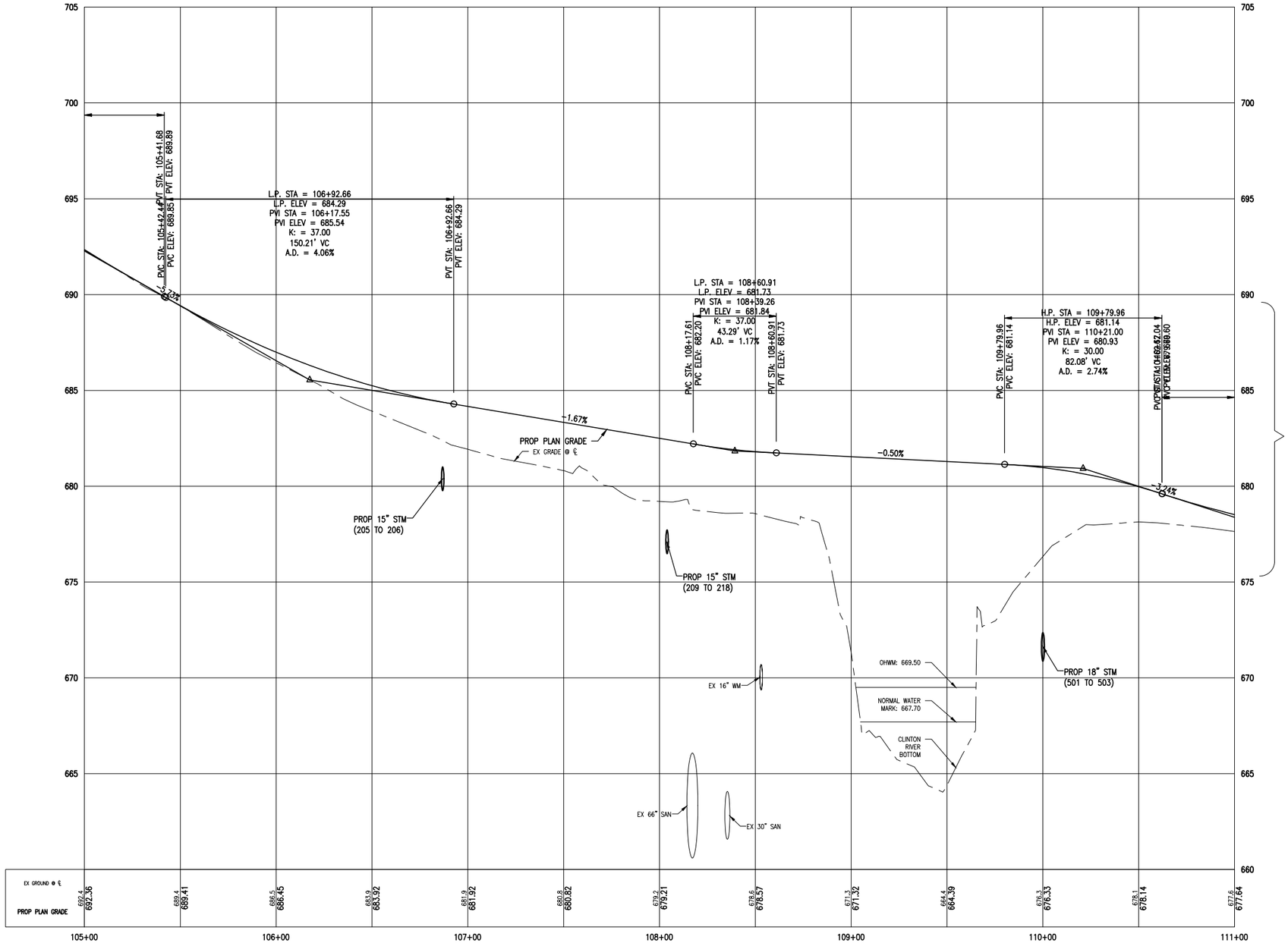
AVON RD



NOTE
SEE BRIDGE SHEETS FOR EXISTING BRIDGE AND PROPOSED BRIDGE DETAILS INCLUDING RIPRAP UNDER THE BRIDGE

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REVISIONS:

DATE: 10/15/2020
PROJ NUMBER: 0170-19-0060
PROJ MGR: EMG
DESIGNED: DC
CADD: JK
COUNTY: OAKLAND
CITY/VILLAGE/TOWNSHIP: ROCHESTER HILLS
SCALE: H: 1"=40' V: 1"=4'
HORIZONTAL DATUM: NAD83 (2007)
VERT DATUM: NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

PROFILE - CENTER

SHEET 15 OF 38

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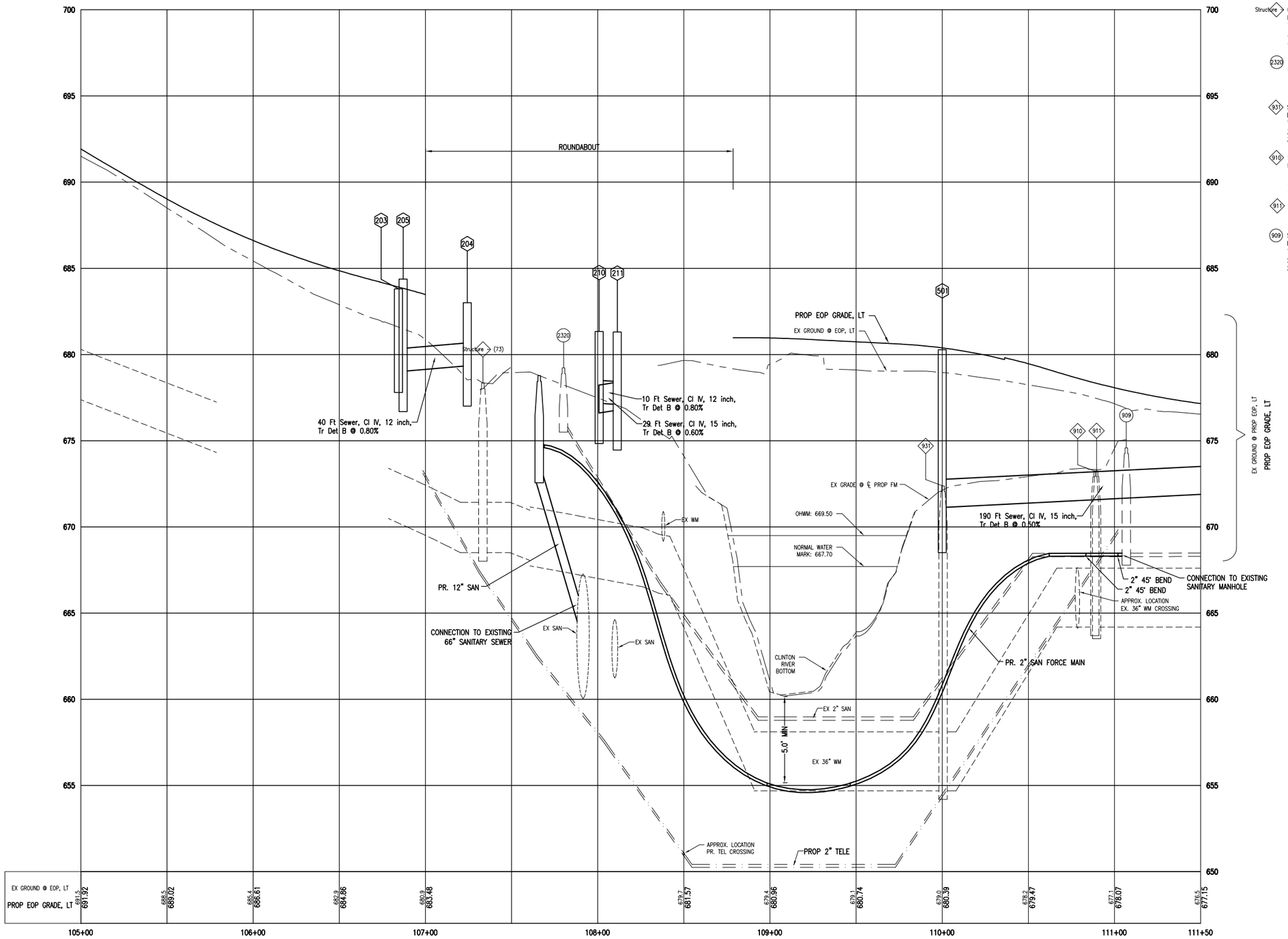
AVON RD



	691.5	688.5	685.4	682.9	680.9	679.7	679.4	679.1	679.0	678.2	677.1	676.5
EX GROUND @ EOP, LT	691.92	689.02	686.61	684.86	683.48	681.57	680.96	680.74	680.39	679.47	678.07	677.15
PROP EOP GRADE, LT												

Structure
- (73) STA 107+33.36, 48.9' L
  EX WM GATE WELL
  T/CAST 678.35
  30" T/P NE 671.22
  30" T/P SW 671.22
- 2320 STA 107+80.15, 62.6' L
  EX SAN MH
  T/CAST 679.22
  2" INV NE 676.01
- 931 STA 110+00.46, 69.5' L
  EX WM GATE WELL
  T/CAST 672.38
  36" T/P SW 657.90
  36" T/P NE 657.90
- 910 STA 110+88.65, 46.8' L
  EX WM GATE WELL
  T/CAST 673.24
  36" T/P SW 667.40
  36" T/P NE 667.40
- 911 STA 110+89.61, 43.0' L
  EX WM GATE WELL
  T/CAST 673.26
- 909 STA 111+06.87, 36.8' L
  EX SAN MH
  T/CAST 674.59
  2" INV SW 668.29
  2" INV NE 668.29
- 203 STA 106+84.36, 23.9' L
  24" DIA CATCH BASIN, COVEF
  T/CAST 683.80
  12" INV SE 680.30
- 205 STA 106+87.07, 5.8' L
  48" DIA CATCH BASIN, COVEF
  T/CAST 684.37
  12" INV NW 680.15
  15" INV SE 679.80
  12" INV NE 679.19
- 204 STA 107+24.29, 15.1' L
  24" DIA CATCH BASIN, COVEF
  T/CAST 683.01
  12" INV SW 679.51
- 210 STA 108+00.84, 65.2' L
  24" DIA CATCH BASIN, COVEF
  T/CAST 681.34
  12" INV E 677.34
- 211 STA 108+11.36, 62.3' L
  48" DIA CATCH BASIN, COVE
  T/CAST 681.31
  15" INV S 676.96
  12" INV W 677.26
- 501 STA 110+00.00, 28.5' L
  48" DIA CATCH BASIN, COVEF
  T/CAST 680.28
  15" INV NE 671.31
  18" INV SE 671.01

NOTE
SEE BRIDGE SHEETS FOR EXISTING BRIDGE AND PROPOSED BRDIGE DETAILS INCLUDING RIPRAP UNDER THE BRIDGE

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REVISIONS:

DATE	PROJ NUMBER	ENG	DESIGNED	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	HORZ DATUM	VERT DATUM
10/15/2020	0170140060	DC	JK	JW	OAKLAND	ROCHESTER HILLS	H: 1"=40' V: 1"=4'	NAD83 (2007)	NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER
PROFILE - LEFT

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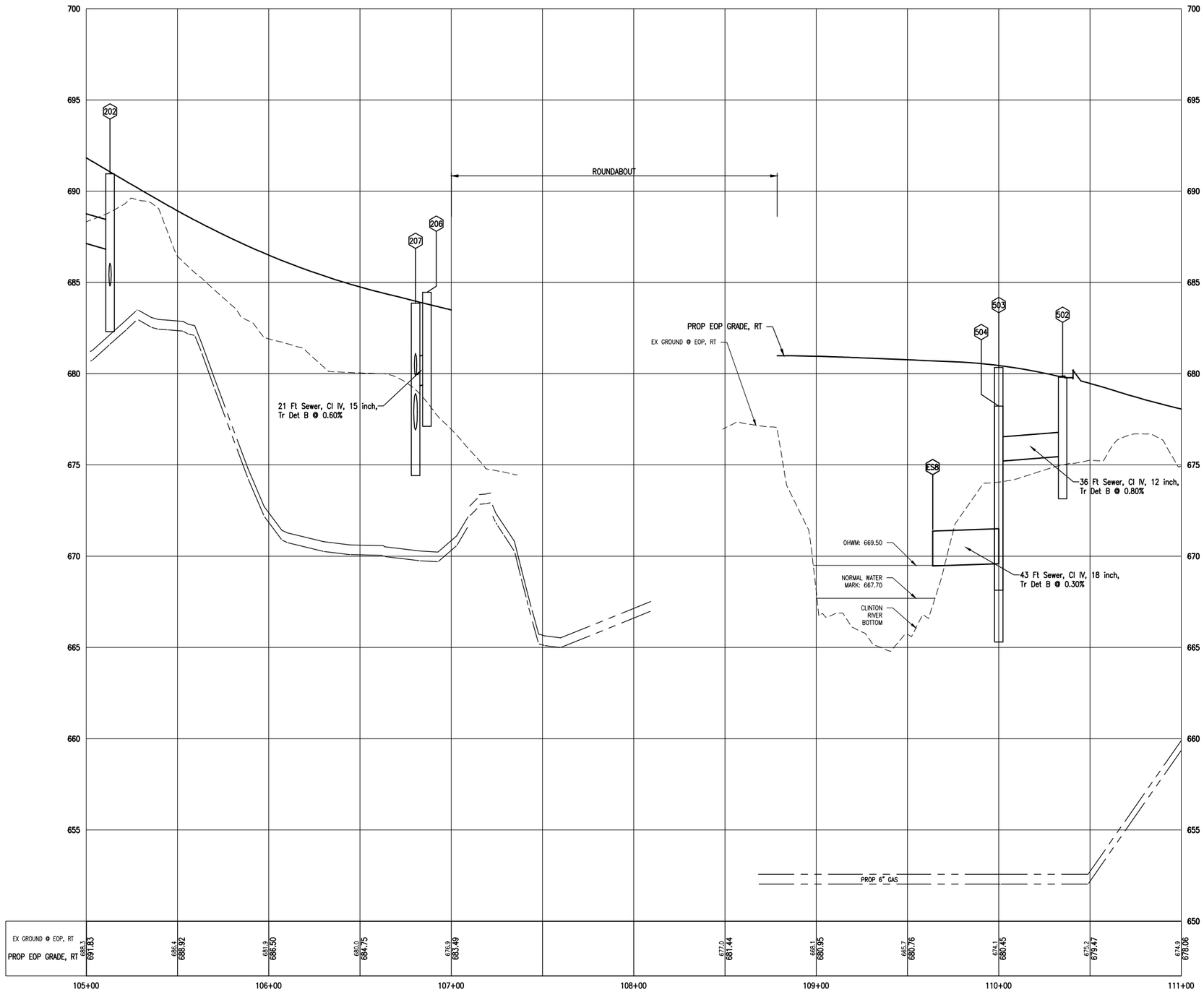
AVON RD



202 STA 105+13.00, 26.6' R
48" DIA CATCH BASIN, COVER J
T/CAST 690.95
15" INV W 686.94
15" INV NE 684.80

207 STA 106+80.42, 27.9' R
48" DIA CATCH BASIN, COVER J
T/CAST 683.86
15" INV N 679.49
24" INV SE 676.91
15" INV SW 679.86

206 STA 106+86.64, 8.3' R
48" DIA CATCH BASIN, COVER K
T/CAST 684.46
15" INV NW 679.72
15" INV S 679.61

ES8 STA 109+63.80, 76.6' R
18" CULV END SECTION
T/CAST 671.46
18" INV N 669.67

503 STA 110+00.00, 25.6' R
48" DIA CATCH BASIN, COVER J
T/CAST 680.34
18" INV NW 670.74
18" INV SE 670.64
12" INV NE 675.36

504 STA 110+00.00, 54.4' R
48" DIA CATCH BASIN, COVER B
T/CAST 678.22
18" INV NW 670.50
18" INV S 669.80

502 STA 110+35.01, 24.1' R
24" DIA CATCH BASIN, COVER J
T/CAST 679.81
12" INV SW 675.64

NOTE
SEE BRIDGE SHEETS FOR EXISTING BRIDGE AND PROPOSED BRDIGE DETAILS INCLUDING RIPRAP UNDER THE BRIDGE

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REVISIONS:

DATE 10/15/2020 | PROJ NUMBER 0170-19-0060 | DES DC | PROJ MGR JK | DWG EAG | CHKD JM | COUNTY OAKLAND | CITY/VILLAGE/TOWNSHIP ROCHESTER HILLS | SCALE H: 1"=40' V: 1"=4' | HORIZ DATUM NAD83 (2007) | VERT DATUM NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

PROFILE - RIGHT

SHEET 17 OF 38

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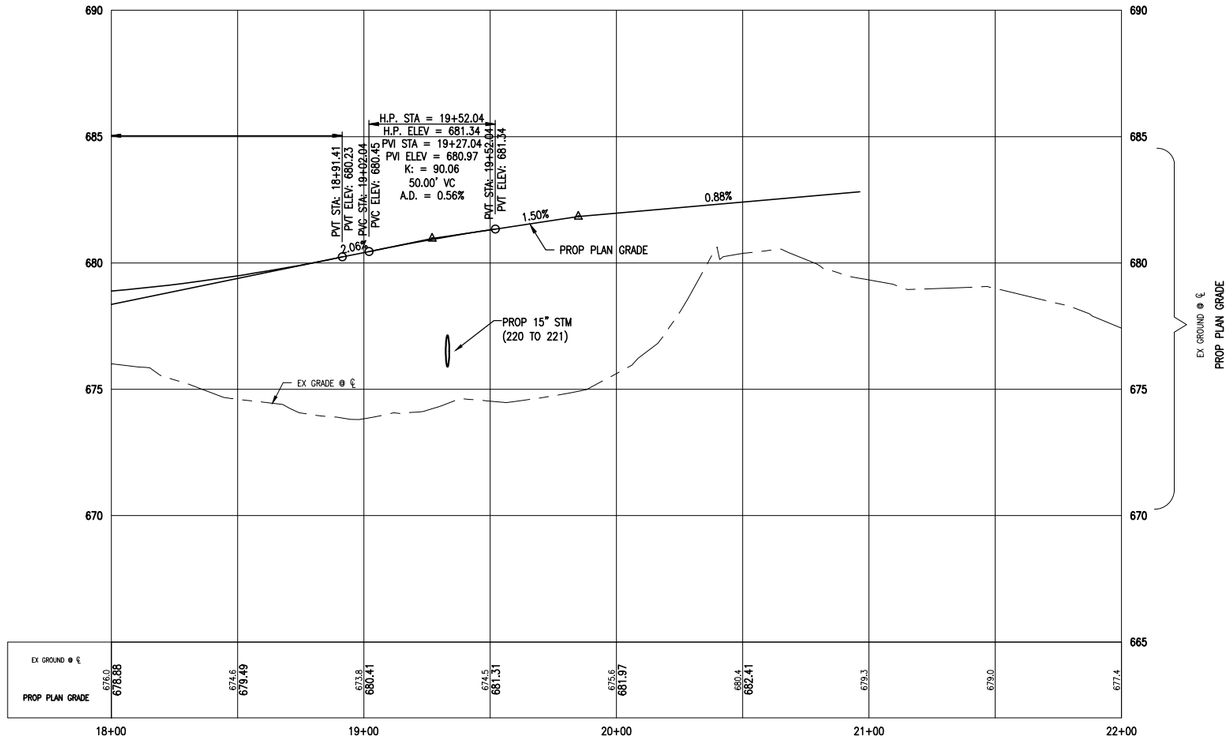
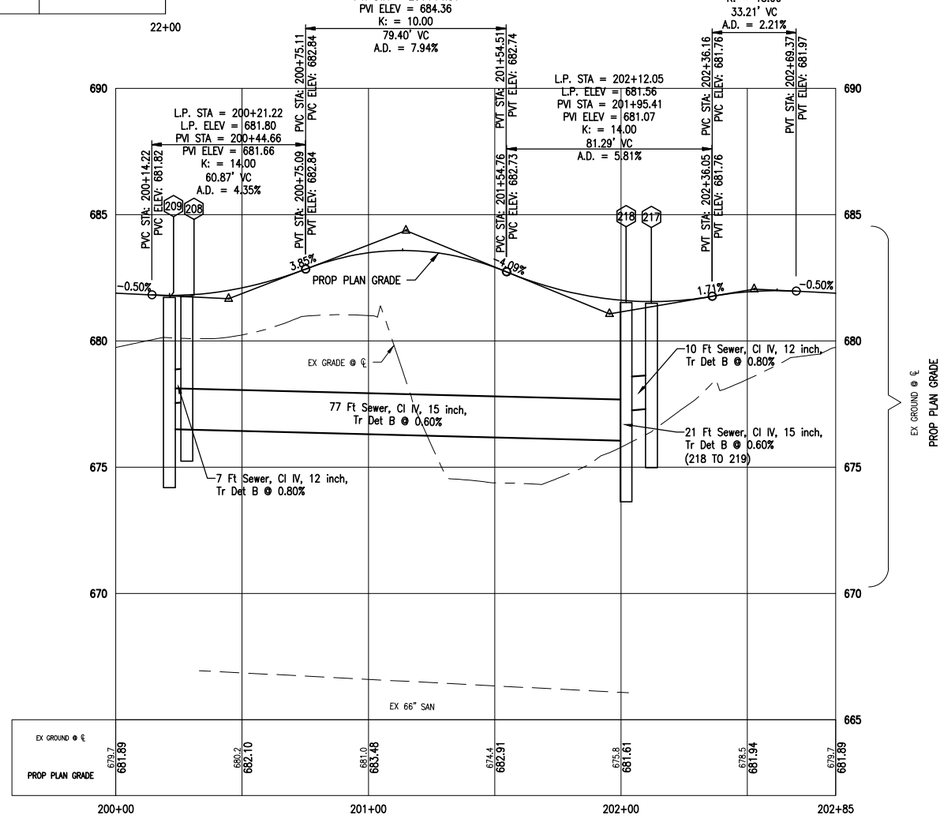
DEQUINDRE RD



CIRCULATING ROADWAY PROFILE @ AVON & DEQUINDRE



209 STA 200+21.22, 1.0' L
48" DIA CATCH BASIN, COVER C
T/CAST 681.72
12" INV W 677.69
15" INV N 676.79
15" INV SE 676.69

208 STA 200+28.10, 1.0' L
24" DIA CATCH BASIN, COVER C
T/CAST 681.74
12" INV E 677.74

218 STA 202+02.05, 1.0' L
60" DIA CATCH BASIN, COVER C
T/CAST 681.52
12" INV NE 677.40
15" INV SE 676.13
15" INV NW 676.23

217 STA 202+12.05, 1.0' L
24" DIA CATCH BASIN, COVER C
T/CAST 681.49
12" INV SW 677.48

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REVISIONS:

DATE 10/15/2020 | PROJ NUMBER 0170-19-0060 | DMG DC | PROJ MGR JK | CASD JM | COUNTY OAKLAND | CITY/VILLAGE/TOWNSHIP ROCHESTER HILLS | H: 1"=40' | V: 1"=4' | HORIZ DATUM NAD83 (2007) | VERT DATUM NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

PROFILE - CENTER

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SHEET 18 OF 38

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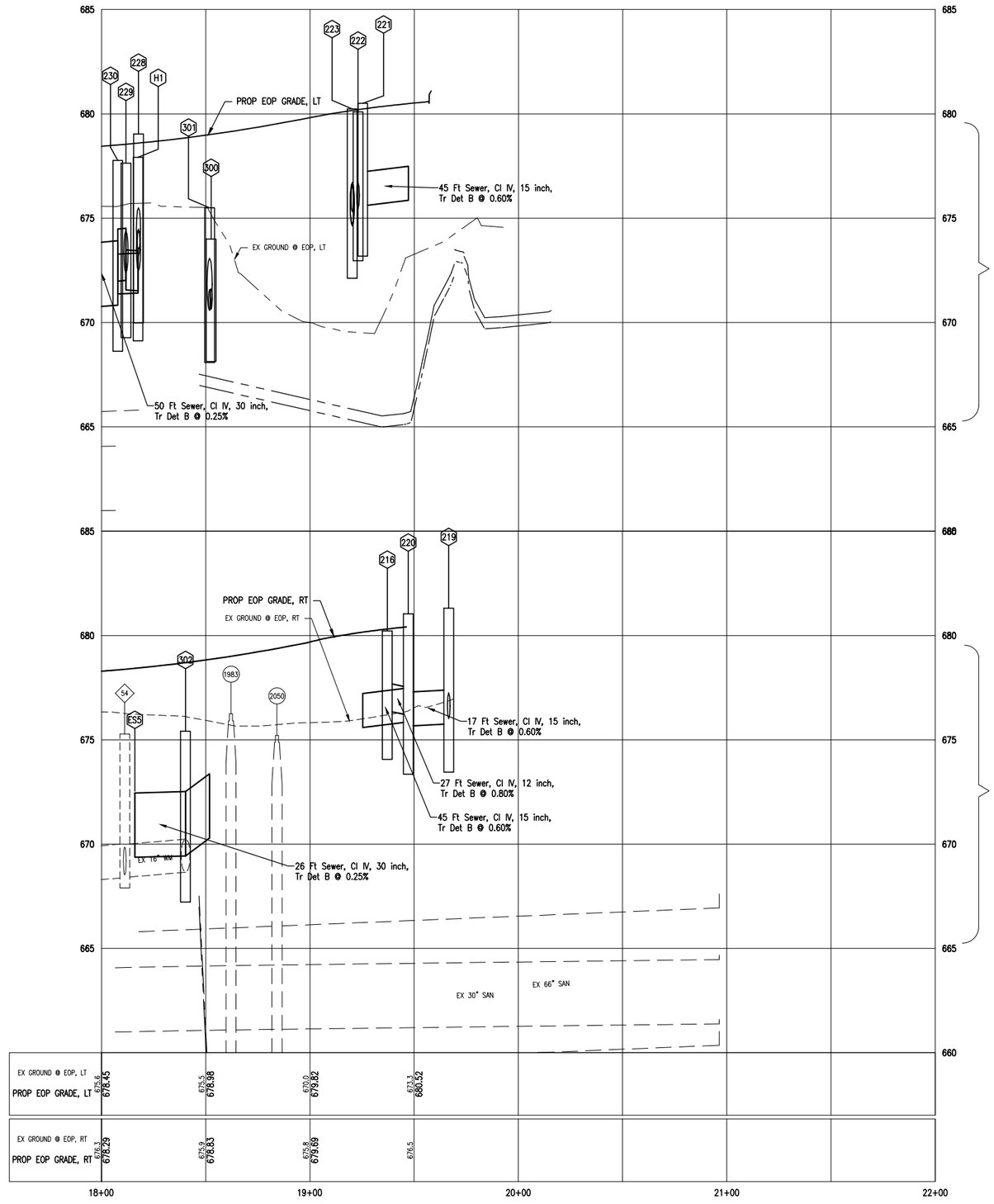
DEQUINDRE RD



EX GROUND @ PROP EOP, LT
PROP EOP GRADE, LT

EX GROUND @ PROP EOP, RT
PROP EOP GRADE, RT

(230) STA 18+07.77, 65.7' L
84" DIA CATCH BASIN, COVER B
T/CAST 677.77
30" INV S 671.12
18" INV NW 671.57
24" INV N 672.23

(228) STA 18+17.73, 30.8' L
60" DIA CATCH BASIN, COVER B
T/CAST 679.04
24" INV W 673.50
15" INV E 673.19
24" INV S 672.48

(223) STA 19+20.30, 60.5' L
60" DIA CATCH BASIN, COVER B
T/CAST 680.23
24" INV E 674.62
15" INV N 675.31
24" INV NW 674.72

(300) STA 18+52.55, 144.4' L
60" DIA CATCH BASIN, COVER G
T/CAST 674.00
12" INV NE 670.63

(301) STA 18+51.85, 132.7' L
60" DIA CATCH BASIN, COVER G
T/CAST 675.50
12" INV SW 670.58
30" INV NE 670.58

(222) STA 19+23.06, 35.6' L
48" DIA CATCH BASIN, COVER J
T/CAST 680.10
15" INV NE 675.56
15" INV S 675.46

(221) STA 19+25.33, 16.5' L
48" DIA CATCH BASIN, COVER K
T/CAST 680.50
15" INV N 675.78
15" INV SW 675.68

(1983) STA 18+62.12, 42.7' R
EX SAN MH
T/CAST 676.25
30" INV SE 661.39
30" INV NW 661.39

(2050) STA 18+84.19, 28.4' R
EX SAN MH
T/CAST 675.21
66" INV SE 660.03
66" INV NW 660.03

(ES5) STA 18+15.99, 66.2' R
15 inch Flared End Section 67 x 74
T/CAST 672.54
30" INV W 669.66

(302) STA 18+40.30, 59.4' R
72" DIA CATCH BASIN, COVER B
T/CAST 675.41
30" INV SW 669.73
30" INV E 669.73

(216) STA 19+37.12, 47.8' R
24" DIA CATCH BASIN, COVER J
T/CAST 680.22
12" INV SW 676.56

(220) STA 19+47.20, 22.7' R
48" DIA CATCH BASIN, COVER K
T/CAST 681.04
12" INV NE 676.35
15" INV NW 675.85
15" INV S 676.05

OHM
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34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
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REVISIONS:

DATE 10/15/2020 | PROJ NUMBER 0170-15-0089 | DES ENG DC | PROJ MGR JK | CADD JM | COUNTY OAKLAND | CITY/VILLAGE/TOWNSHIP ROCHESTER HILLS | SCALE H: 1"=40' V: 1"=4' | HORZ DATUM NAD83 (2007) | VERT DATUM NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

PROFILE - LEFT & RIGHT

SHEET 19 OF 38

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WRP026879 v1.0
Approved
Issued On:12/22/2020
Expires On:12/22/2025

DRAWING PATH: P:\0166_0200\0170190060_Avon-Dequindre_Design\Drawings\Civil\Misc\EGLE\190060PRF_EGLE.dwg Oct 15, 2020 - 5:57pm

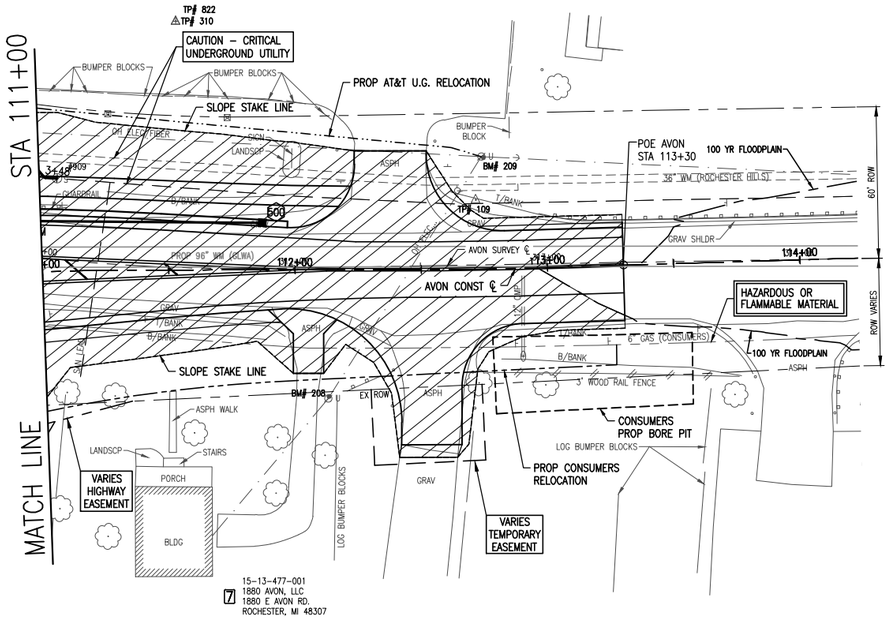
JOB BENCHMARK #208
SET COTTON SPINDLE IN NORTH FACE OF TELEPHONE POLE SOUTH SIDE OF AVON, ±4' EAST OF RED HOUSE DWY
ELEV 675.20

JOB BENCHMARK #209
SET COTTON SPINDLE IN SOUTH FACE OF UTILITY POLE NORTH SIDE OF AVON, ±17' NORTH OF TP 109
ELEV 674.96

TRAVERSE POINT #108
N 429701.83
E 13465046.07 ELEV 673.93

TRAVERSE POINT #109
N 429891.04
E 13465092.14 ELEV 676.00

AVON RD



LEGEND

- WETLANDS FILL
- IMPACTS WITHIN 100 YR FLOODPLAIN (DRAINAGE AREA OVER 2 MILES)
- RIP RAP

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REVISIONS:

DATE 10/15/2020 | PROJ NUMBER 0116-19-0060 | ENG DC | PROJ MGR JK | CADD JM | COUNTY OAKLAND | CITY/VILLAGE/TOWNSHIP ROCHESTER HILLS | SCALE H: 1"=50' V: 1"=5' | HORIZ DATUM NAD83 (2007) | VERT DATUM NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

CONSTRUCTION PLAN

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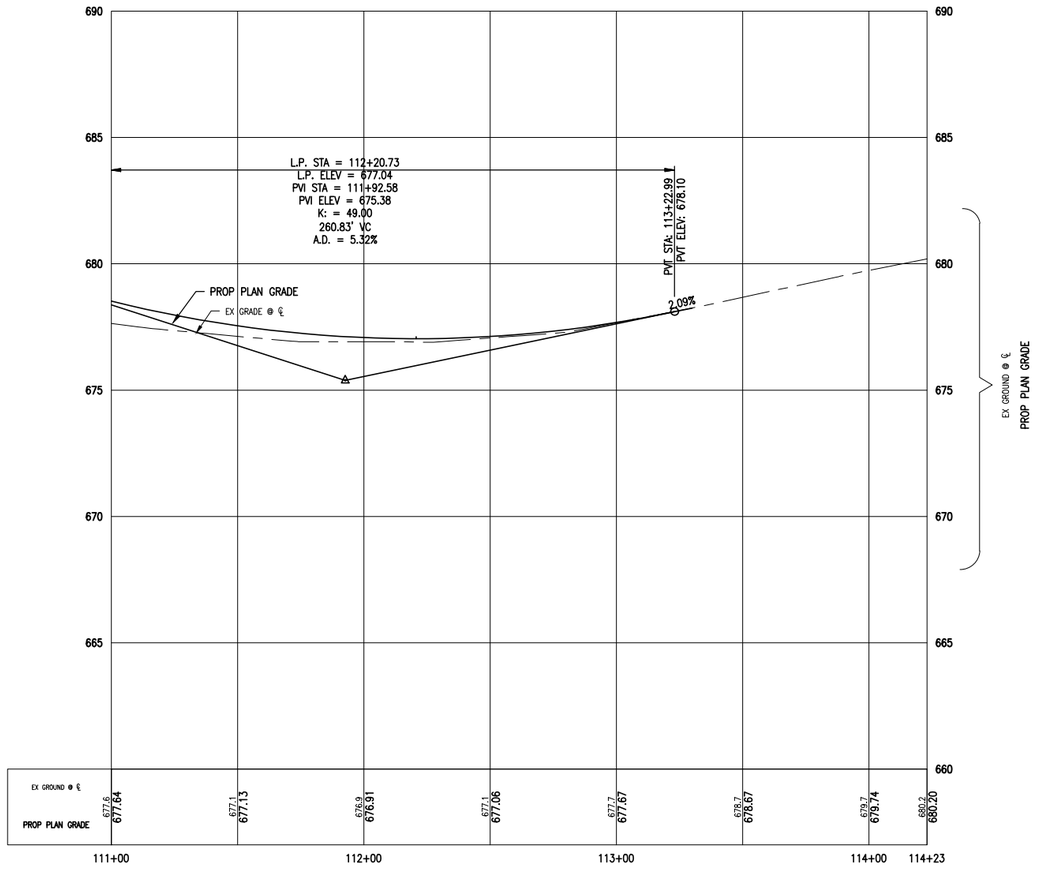
AVON RD



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REVISIONS:

DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	HONE DATUM	VERT DATUM
10/15/2020	0170-19-0060	DC	JK	JM	OAKLAND	ROCHESTER HILLS	H: 1"=40' V: 1"=4'	NAD83 (2007)	NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY

EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

PROFILE - CENTER

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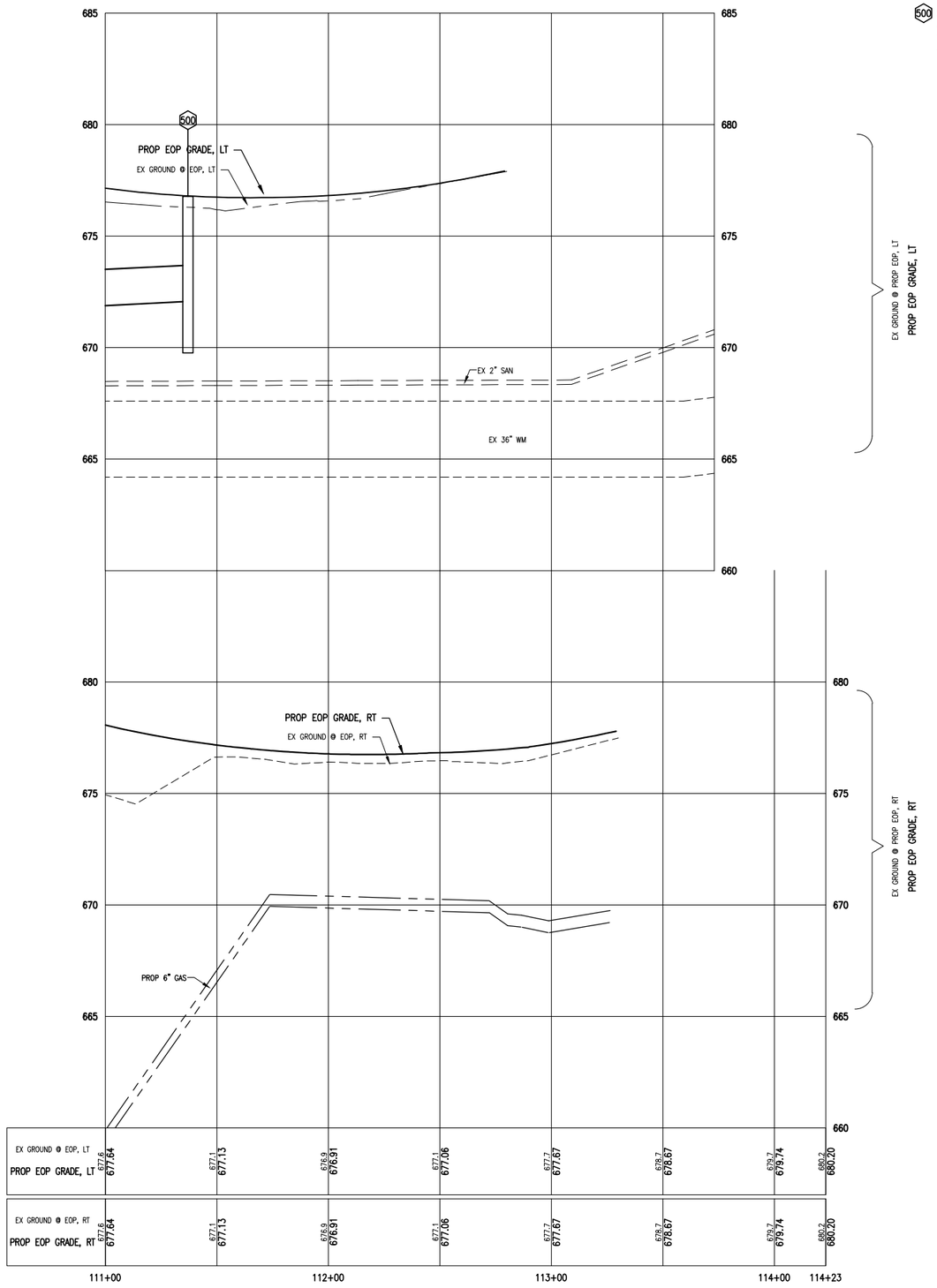
AVON RD



500 STA 111+87.06, 18.6' L
48" DIA CATCH BASIN, COVER J
T/CAST 676.78
15" INV SW 672.26

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DATE	PROJ NUMBER	DRG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	HONE DATUM	VERT DATUM
10/15/2020	0170-19-0060	DC	JK	JM	OAKLAND	ROCHESTER HILLS	H: 1"=40' V: 1"=4'	NAD83 (2007)	NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

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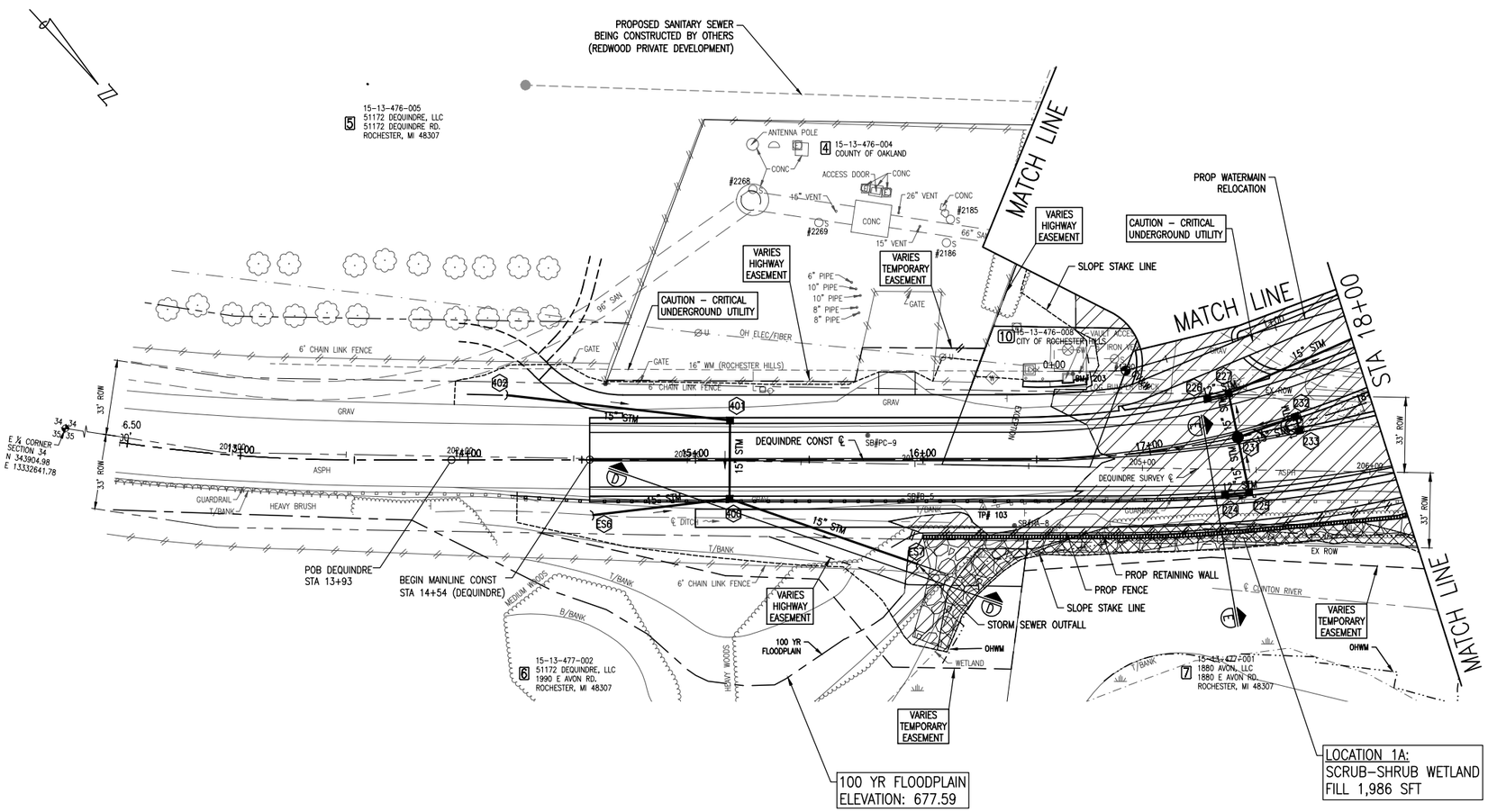
DEQUINDRE RD

JOB BENCHMARK #202
SET GEAR SPIKE IN NORTH FACE OF POWER POLE W/TRAFFIC LIGHT @ SW QUAD OF AVON/DEQUINDRE INT
ELEV 678.22

JOB BENCHMARK #203
SET BM, CUT CROSS ON NW CORNER OF CONC APRON OF VAULT COVER, LOCATED ON W SIDE OF DEQUINDRE AT PUMP STA
ELEV 678.48

TRAVERSE POINT #102
N 429534.13
E 13464809.26 ELEV 679.04

TRAVERSE POINT #103
N 429309.29
E 13465122.53 ELEV 678.02



LEGEND

- WETLANDS FILL
- IMPACTS WITHIN 100 YR FLOODPLAIN (DRAINAGE AREA OVER 2 MILES)
- RIP RAP

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ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER
CONSTRUCTION PLAN

DATE	PROJ NUMBER	ENG	PROJ MGR	CASD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	HORZ DATUM	VERT DATUM
10/15/2020	0166-19-0060	DC	JK	AR	OAKLAND	ROCHESTER HILLS	H: 1"=30' V: 1"=5'	NAD83 (2007)	NAVD88 (GEOID03)

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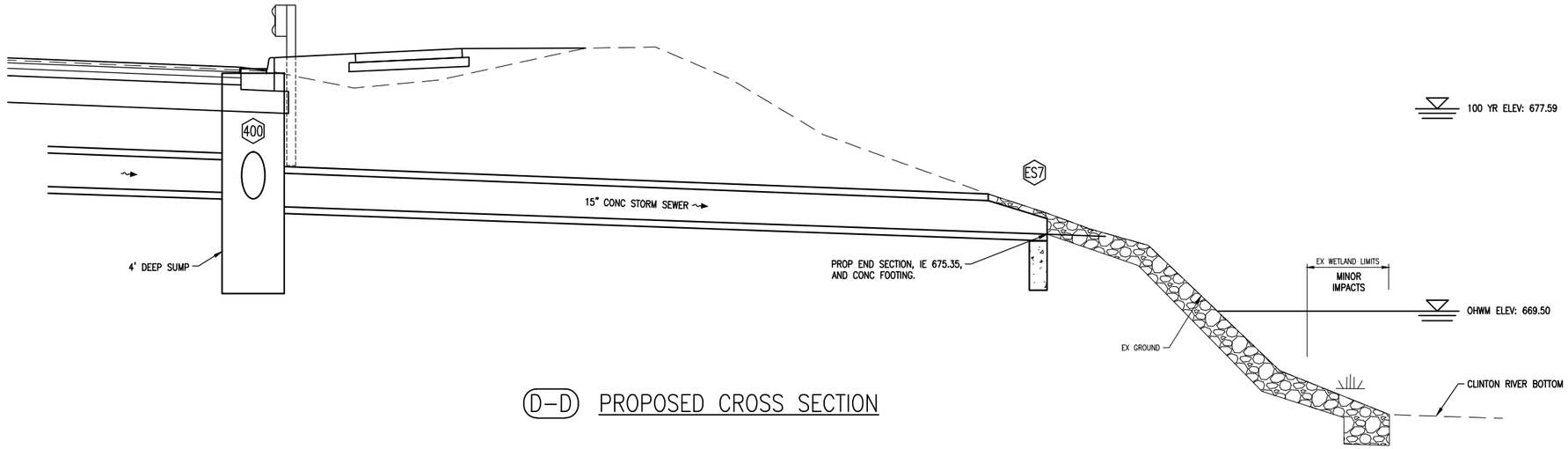
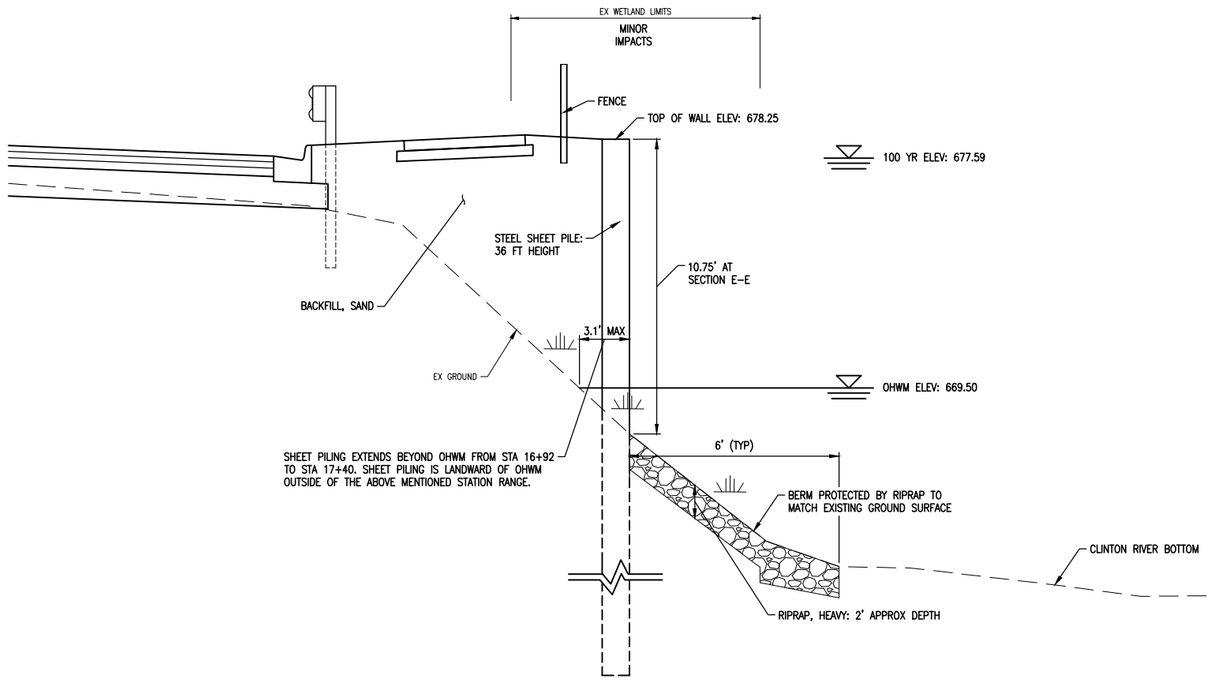


(D–D) PROPOSED CROSS SECTION



(E–E) PROPOSED CROSS SECTION

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REVISIONS:

DATE 10/15/2020 | PROJ NUMBER 0170-19-0060 | DRG DC | PROJ MGR JK | CADD JM | COUNTY OAKLAND | CITY/VILLAGE/TOWNSHIP ROCHESTER HILLS | H: NTS | SCALE V: NTS | HORIZ DATUM NAD83 (2007) | VERT DATUM NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER
STORM SEWER OUTLET SECTION

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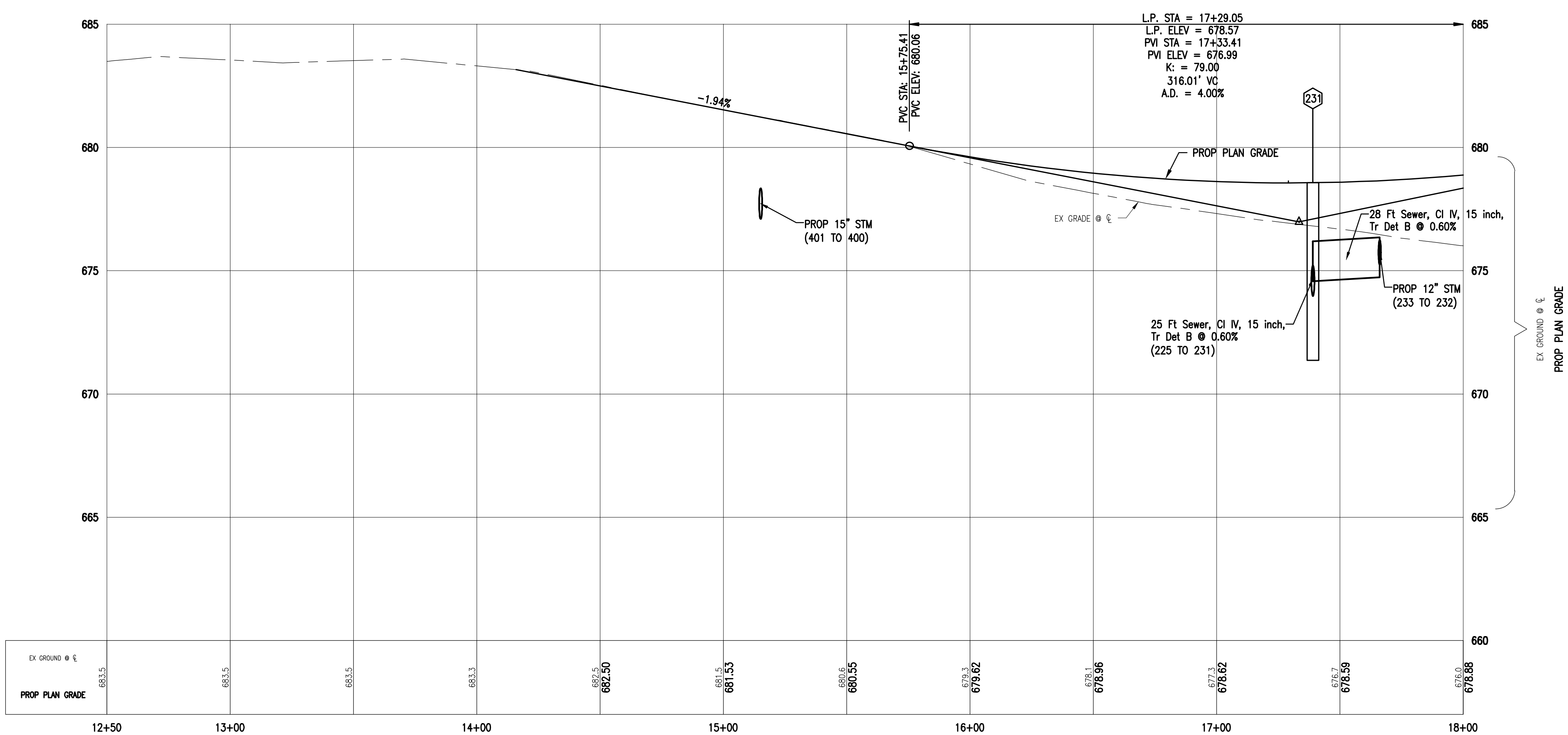
DEQUINDRE RD



231 STA 17+39.05, 0.0' L
48" DIA CATCH BASIN, COVER B
T/CAST 678.57
15" INV NE 673.97
15" INV SW 673.87
15" INV NW 674.76

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ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

PROFILE - CENTER

SHEET 25 OF 38

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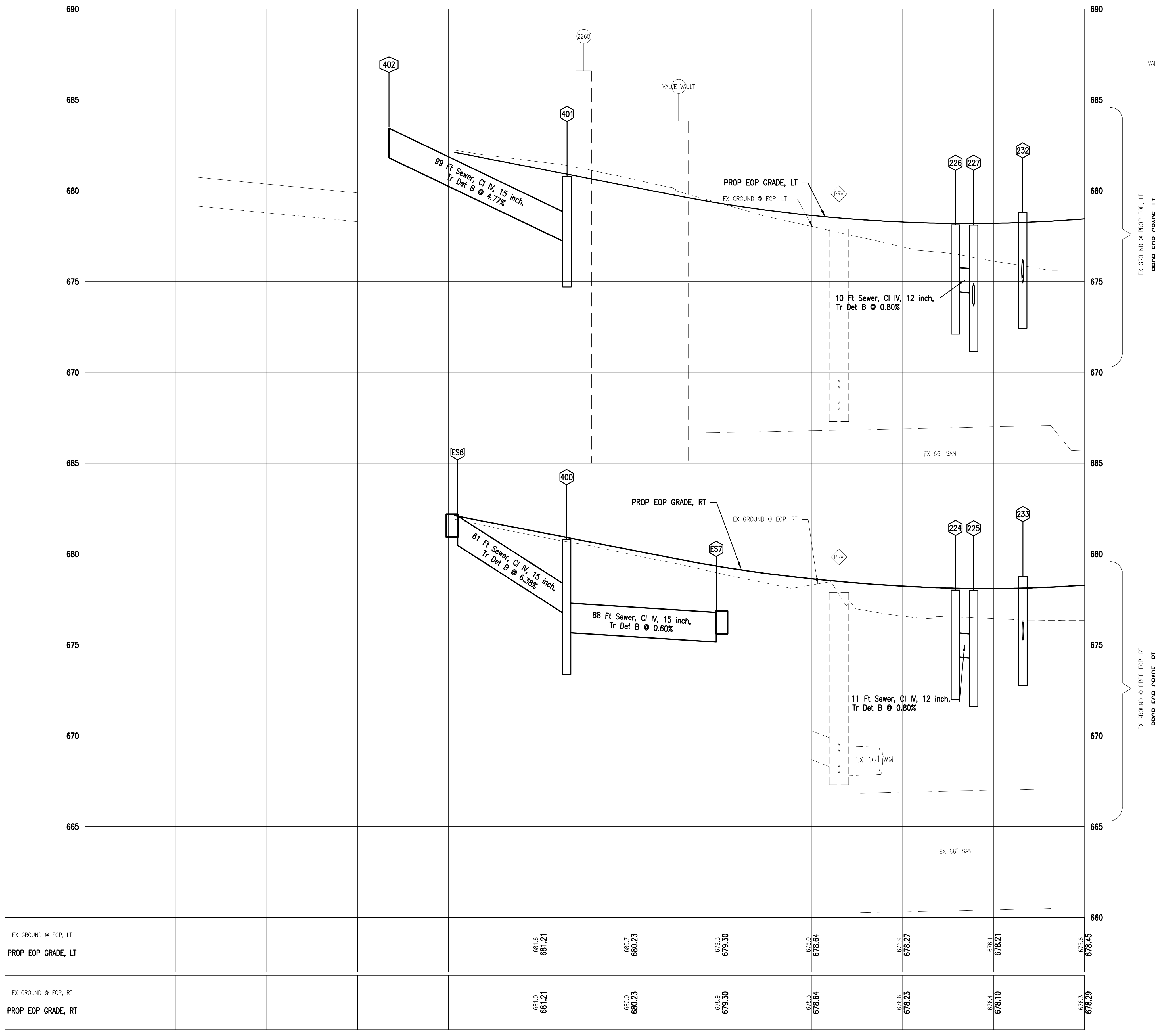
DEQUINDRE RD



2268 STA 15+24.48, 114.0' L
EX SAN MH
T/CAST 686.60
96" INV E 648.33
66" INV NW 658.73

VALVE VAULT STA 15+76.69, 106.2' L
EX SAN MH
T/CAST 683.84
66" INV SE 658.73
66" INV NW 660.61

PRV STA 16+64.93, 38.4' L
EX WM PRV
T/CAST 677.88
16" T/P SE 669.59
16" T/P NW 669.26

402 STA 14+17.29, 28.5' L
15" CULV END SECTION
T/CAST 683.52
15" INV NW 682.00

401 STA 15+15.23, 17.3' L
48" DIA CATCH BASIN, COVER J
T/CAST 680.80
15" INV SE 677.30
15" INV NE 677.20

226 STA 17+29.05, 19.3' L
24" DIA CATCH BASIN, COVER D
T/CAST 678.12
12" INV NW 674.61

227 STA 17+39.05, 19.8' L
48" DIA CATCH BASIN, COVER D
T/CAST 678.11
12" INV SE 674.53
15" INV NE 673.75
15" INV W 673.65

232 STA 17+66.09, 3.1' L
48" DIA CATCH BASIN, COVER K
T/CAST 678.79
12" INV NE 675.22
15" INV SE 674.92

15" INV SE 676.81
15" INV NW 675.87
15" INV SW 676.99

ES7 STA 15+97.42, 45.8' R
15" CULV END SECTION
T/CAST 676.87
15" INV SE 675.35

224 STA 17+29.05, 23.6' R
24" DIA CATCH BASIN, COVER C
T/CAST 678.01
12" INV NW 674.51

225 STA 17+39.05, 24.7' R
48" DIA CATCH BASIN, COVER C
T/CAST 678.00
12" INV SE 674.43
15" INV SW 674.12

233 STA 17+66.19, 3.2' R
24" DIA CATCH BASIN, COVER K
T/CAST 678.78
12" INV SW 675.27

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REVISIONS:

DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	HORIZ DATUM	VERT DATUM
10/15/2020	0170-19-0060	DC	JK	JM	OAKLAND	ROCHESTER HILLS	H: 1"=40' V: 1"=4'	NAD83 (2007)	NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

PROFILE - LEFT & RIGHT

SHEET 26 OF 38

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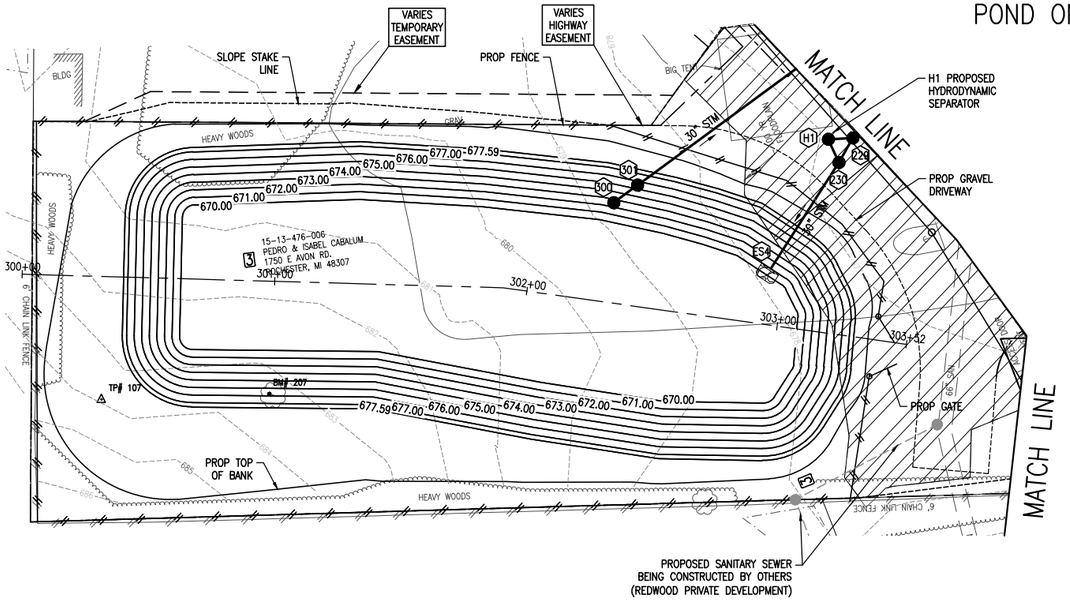
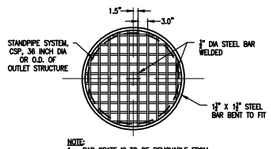
Issued On:12/22/2020
Expires On:12/22/2025

POND ON PARCEL 3



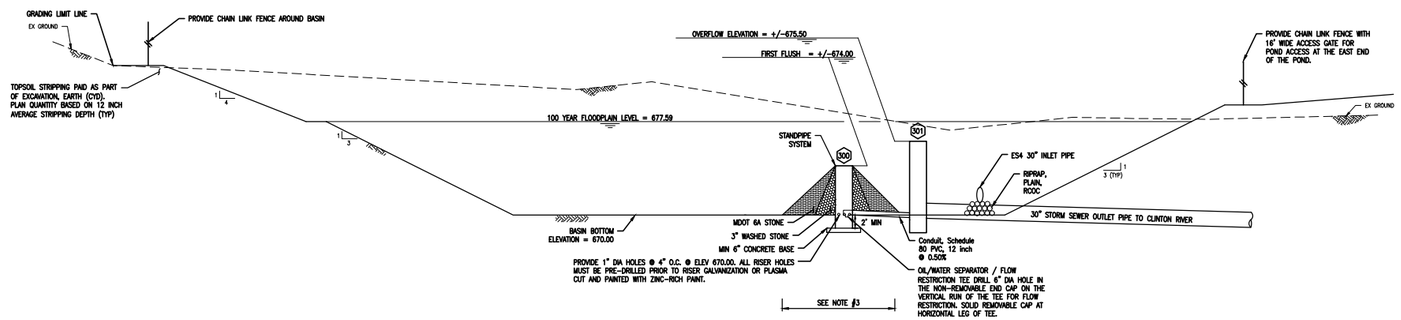
Basin Volume (below 100 year floodplain)			
ELEV	AREA	VOLUME	TOTAL VOLUME
670	14837.5	-	-
671	16,612.2	15,724.9	15,724.9
672	18,443.6	17,527.9	33,252.8
673	20,331.4	19,387.5	52,640.3
674	22,275.9	21,303.7	73,943.9
675	24,276.9	23,276.4	97,220.3
676	26,334.4	25,305.7	122,526.0
677	28,448.5	27,391.5	149,917.4
677.59	29,722.4	17,160.4	167,077.8



NOTE:
1. BAR GRATE IS TO BE REMOVABLE FROM STANDPIPE.
2. APPROXIMATE WEIGHT OF GRATE IS:
   70 LBS FOR STANDPIPE
   85 LBS FOR 48" DIA OUTLET STRUCTURE

BAR GRATE DETAIL
NO SCALE

NOTE:
EXTREME CARE MUST BE EXERCISED TO INSURE THAT THE OUTLET HOLES IN THE STANDPIPE(S) DO NOT BECOME CLOGGED WITH SEDIMENT. WASH/REPLACE STONE FOR THE OUTLET CONTROL STRUCTURE AS A FINAL SESC MEASURE IF CLOGGED.



CROSS SECTION VIEW
NOT TO SCALE

LEGEND

WETLANDS FILL

IMPACTS WITHIN 100 YR FLOODPLAIN (DRAINAGE AREA OVER 2 SQ MILES)

RIP RAP

NOTES:
1. ALL DISTURBED AREAS WITHIN THE GRADING LIMITS SHALL BE RESTORED ACCORDING TO TURF ESTABLISHMENT, THM SEED, REGULAR MULCH, PERFORMANCE, RCOC OR TURF ESTABLISHMENT, ES SEED, SPECIAL MULCH, PERFORMANCE, RCOC. SEE SESC SHEET.
2. IN THOSE LOCATIONS WHERE THE DETENTION POND IS TO BE BUILT UP OR BERMED ABOVE EXISTING GRADE, THE FOLLOWING APPLIES:
   - THE BERM SHALL BE "KEYED" IN TO THE EXISTING GROUND BY EXCAVATING A MINIMUM OF 1.5' PRIOR TO PLACING EMBANKMENT, BERM, RCOC.
   - CONSTRUCT BERM ON SUITABLE BASE SOILS OR COMPACTED SOILS, AS DETERMINED BY THE ENGINEER PRIOR TO PLACING BERM EMBANKMENT.
   - PLACE BERM EMBANKMENT IN 6 INCH LIFTS AND COMPACT TO 95% OF MAXIMUM DRY DENSITY. SOIL MIX SHALL BE AS DESCRIBED IN THE SPECIAL PROVISION FOR EMBANKMENT, BERM, RCOC.

   IN THOSE LOCATIONS WHERE THE DETENTION POND SIDES ARE IN CUT SECTIONS, THEN EARTHWORK SHALL BE PAID AS EXCAVATION, EARTH, EMBANKMENT, CIP SHALL BE USED FOR FILLING IN ANY VOIDS LEFT BY TOPSOIL STRIPPING TO REACH FINAL GRADE.
3. STANDPIPE SYSTEM, CSP, 36 INCH DIA INCLUDES STONE BACKFILL, CONCRETE PAD, FLOW RESTRICTION TEE, AND WATER SEPARATOR AS DESCRIBED IN SPECIAL PROVISION. BAR GRATE IS PAID FOR SEPARATELY.

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REVISIONS:

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER
POND PLAN

DATE	PROJ MANAGER	CADD	COUNTY	HORIZ DATUM	VERT DATUM
10/15/2020	EHC	JM	OAKLAND	NAD83 (2007)	NAVD88 (GEOID09)
PROJ NUMBER	PROJ MGR		CITY/VILLAGE/TOWNSHIP	SCALE	
0170-P0080	DC	JK	ROCHESTER HILLS	H: 1"=40'	V: 1"=4'

SHEET 27 OF 38

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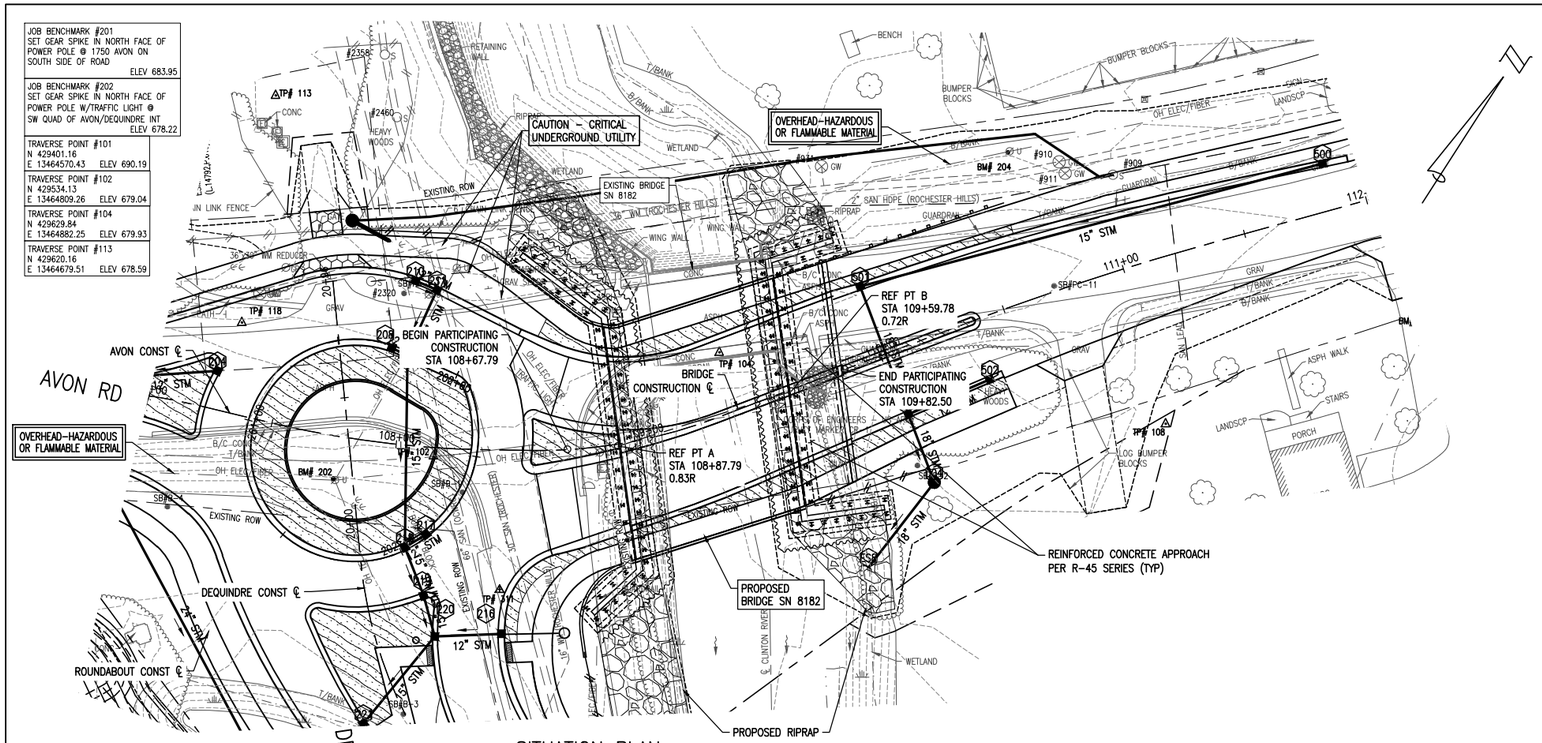
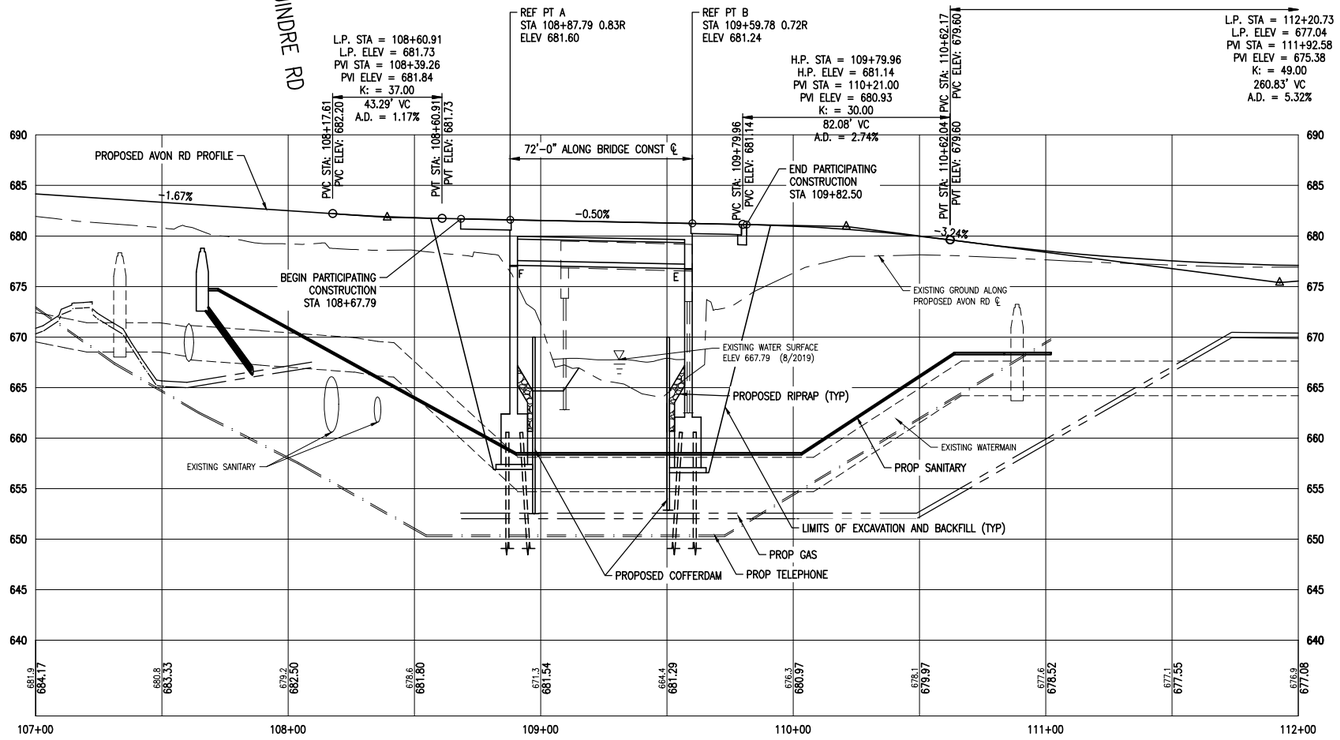
WRP026879 v1.0
Approved
Issued On:12/22/2020
Expires On:12/22/2025

DRAWING PATH: P:\0166_2020\0170\190060_Avon-Dequindre_Design\Drawings\Civil\Misc\EGLE\190060POND_EGLE.dwg Oct 15, 2020 - 5:38pm

JOB BENCHMARK #201 SET GEAR SPIKE IN NORTH FACE OF POWER POLE @ 1750 AVON ON SOUTH SIDE OF ROAD ELEV 683.95
JOB BENCHMARK #202 SET GEAR SPIKE IN NORTH FACE OF POWER POLE W/TRAFFIC LIGHT @ SW QUAD OF AVON/DEQUINDRE INT ELEV 678.22
TRAVERSE POINT #101 N 429401.16 E 1346570.43 ELEV 690.19
TRAVERSE POINT #102 N 429534.13 E 1346809.26 ELEV 679.04
TRAVERSE POINT #104 N 429629.84 E 1346882.25 ELEV 679.93
TRAVERSE POINT #113 N 429620.16 E 1346479.51 ELEV 678.59



SITUATION PLAN



PROFILE ALONG AVON RD CONSTRUCTION ℄

EXISTING STRUCTURE

THE EXISTING STRUCTURE IS A SINGLE SPAN SIDE-BY-SIDE PRESTRESSED BOX BEAM SUPERSTRUCTURE WITH CAST-IN-PLACE PILE CAPS AND SHEETPILE AS ABUTMENTS ON PILES. THE OVERALL LENGTH IS 50'-0". THE OVERALL WIDTH MEASURES 36'-0" AND THE CLEAR ROADWAY WIDTH MEASURES 28'-0". THIS BRIDGE WAS ORIGINALLY BUILT IN 1962 AND DESIGNED FOR H20-44 LOADING. EXISTING PLANS ARE AVAILABLE FOR THIS STRUCTURE.

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES REMOVAL OF THE EXISTING BRIDGE IN ITS ENTIRETY, CONSTRUCTION OF THE PROPOSED BRIDGE, AND PLACING RIPRAP TO THE LIMITS SHOWN. ALL OTHER WORK IS A PART OF THE ROAD PLANS THAT ARE A PART OF THIS CONTRACT.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT THEIR OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

AVON ROAD WILL BE DETOURED OVER OTHER EXISTING ROADS.

PLAN ELEVATIONS REFER TO NAVD 88 DATUM.

WATER LEVEL IS SUBJECT TO CHANGE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING A DETERMINATION OF THE WATER LEVELS THAT MAY EXIST DURING CONSTRUCTION.

"Backfill, Structure, CIP" XXX CUBIC YARDS.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE. IF DEBRIS FALLS INTO THE WATERWAY, IT SHALL BE REMOVED WITHIN 24 HOURS. SINCE DISTURBANCE OF THE WATERWAY BOTTOM MAY BE AS HARMFUL AS THE DEBRIS ITSELF, THE PREVENTIVE MEASURES MUST BE EFFECTIVE. REMOVAL OF DEBRIS WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE INCLUDED IN THE BID ITEM "Structures, Rem".

IMMEDIATELY AFTER THE CONSTRUCTION OF AN ABUTMENT IS COMPLETED, SLOPE PROTECTION AND SEEDING OR SODDING SHALL BE PLACED ON ALL EMBANKMENT SLOPES.

TRAFFIC DATA:

	2021	2041
ADT	18,800	19,550
DESIGN SPEED	35 MPH	–
POSTED SPEED	35 MPH	–
COMMERCIAL TRAFFIC	2%	2%

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Livonia, MI 48150
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REVISIONS:

DATE: 10/15/2020
PROJ NUMBER: 0170-190060
ENG: DC
PROJ MGR: JK
CADD: JM
COUNTY: OAKLAND
CITY/VILLAGE/TOWNSHIP: ROCHESTER HILLS
SCALE: H: 1"=40' V: 1"=4'
HORZ DATUM: MI83 (2007)
VERT DATUM: NGVD88 (GEOID03)
SHEET

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER
GENERAL PLAN OF SITE

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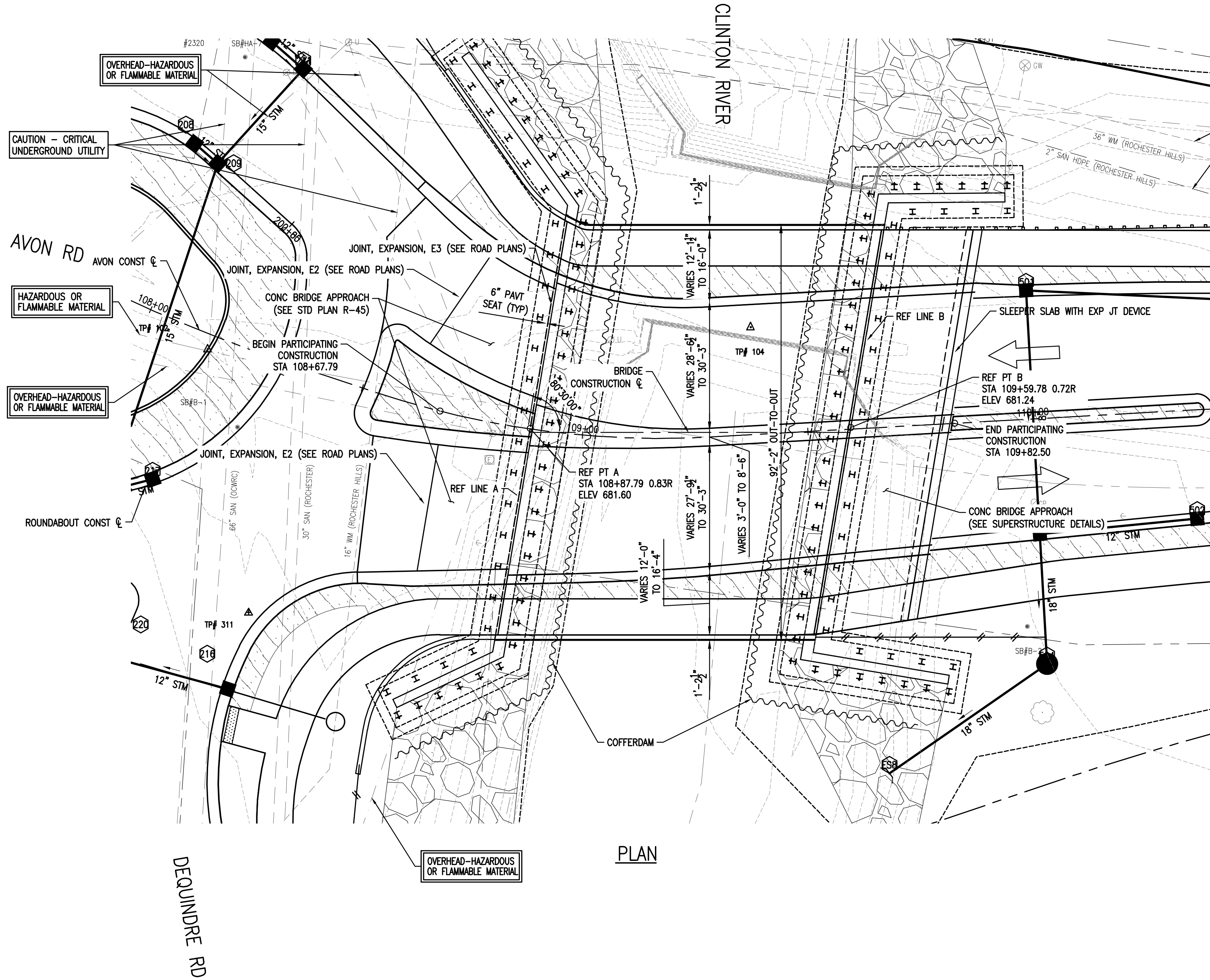
JOB BENCHMARK #201 SET GEAR SPIKE IN NORTH FACE OF POWER POLE @ 1750 AVON ON SOUTH SIDE OF ROAD ELEV 683.95
JOB BENCHMARK #202 SET GEAR SPIKE IN NORTH FACE OF POWER POLE W/TRAFFIC LIGHT @ SW QUAD OF AVON/DEQUINDRE INT ELEV 678.22
TRAVERSE POINT #101 N 429401.16 E 13464570.43 ELEV 690.19
TRAVERSE POINT #102 N 429534.13 E 13464809.26 ELEV 679.04
TRAVERSE POINT #104 N 429629.84 E 13464882.25 ELEV 679.93
TRAVERSE POINT #113 N 429620.16 E 13464679.51 ELEV 678.59



PLAN

NOTES:

THE DESIGN OF THIS STRUCTURE IS BASED ON THE CURRENT AASHTO LRFD BRIDGE DESIGN SPECIFICATION HL–93 MODIFIED LOADING WITH THE EXCEPTION THAT THE DESIGN TANDEM PORTION OF THE HL–93 LOAD DEFINITION SHALL BE REPLACED BY A SINGLE 60 KIP AXLE LOAD BEFORE THE APPLICATION OF THIS 1.2 FACTOR. THE RESULTING LOAD IS HL–93 MOD. LIVE LOAD PLUS DYNAMIC LOAD ALLOWANCE DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH.

THE EXISTING STRUCTURE PROVIDES A WATERWAY AREA OF 535.34 SQUARE FEET TO HIGH WATER ELEVATION 678.38. WATER SURFACE AT THE TIME OF SURVEY ON 8–21–2019 WAS 667.79.

GEOTEXTILE LINER SHALL BE PLACED ON ALL SLOPES PRIOR TO PLACING RIPRAP. PAYMENT FOR GEOTEXTILE LINER SHALL BE INCLUDED IN PAYMENT FOR RIPRAP.

COFFERDAMS HAVE BEEN PROVIDED FOR SUBSTRUCTURE CONSTRUCTION.

THE TREMIE SEAL DESIGN WAS BASED ON A WATER SURFACE AT EL. XXX.XX

RIPRAP QUANTITY IS BASED ON THE LATERAL DIMENSIONS OF THE AREA TO BE PROTECTED, REGARDLESS OF THE NUMBER OF LAYERS. THE ESTIMATED WEIGHT OF RIPRAP IS XXXX TONS.

FALSE DECKING SHALL INCLUDED THE AREA BOUNDED BY REFERENCE LINES A & B AND OUTSIDE FLANGE FASCIAS OF EXISTING BEAMS A & L AND PROPOSED BEAMS A & K, THE ESTIMATED AREA IS 1800 SQUARE FEET DURING REMOVAL AND 6342 SQUARE FEET DURING CONSTRUCTION.

DO NOT USE WHEELED, ROLLER BASED OR MACHINE MOUNTED COMPACTION EQUIPMENT TO COMPACT THE SUBGRADE, SUBBASE, AND BASE WITHIN 10' OF SLEEPER SLAB AFTER IT IS BUILT. USE ONLY HAND/PLATE COMPACTORS. CONTACT PRESSURE OF COMPACTION EQUIPMENT SHALL NOT EXCEED 10 PSI.

SUMMARY OF HYDRAULIC ANALYSIS

EXISTING					PROPOSED			
FLOOD DATA	DISCHARGE (CFS)	WATER SURFACE ELEV. AT UPSTREAM FACE OF STRUCTURE	VELOCITY IN DS CHANNEL (FPS)		WATER SURFACE ELEV. AT UPSTREAM FACE OF STRUCTURE	VELOCITY IN DS CHANNEL (FPS)	WATERWAY AREA (SFT) AT DS FACE	CHANGE IN WS EL 30' US OF PROPOSED STRUCTURE
50 YEAR	7000	678.34	12.58		678.01	7.24	772.29	–0.33
100 YEAR	7900	678.77	13.28		678.38	7.87	772.29	–0.39
MAXIMUM BRIDGE AREA BELOW LOW CHORD IS 772.29 SQUARE FEET								

THE DRAINAGE AREA CONTRIBUTORY TO THIS CROSSING IS 300 SQUARE MILES.

THE WATER SURFACE AND/OR ENERGY GRADE ELEVATIONS SHOWN ON THE ABOVE HYDRAULIC TABLE ARE TO BE USED FOR COMPARISON PURPOSES ONLY AND ARE NOT TO BE USED FOR ESTABLISHING A REGULATORY FLOODPLAIN.

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DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE	HORIZ DATUM	VERT DATUM
10/15/2020	0170-19-0060	DC	JK	JM	OAKLAND	ROCHESTER HILLS	H: 1"=40' V: 1"=4'	NAD83 (2007)	NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

GENERAL PLAN OF STRUCTURE

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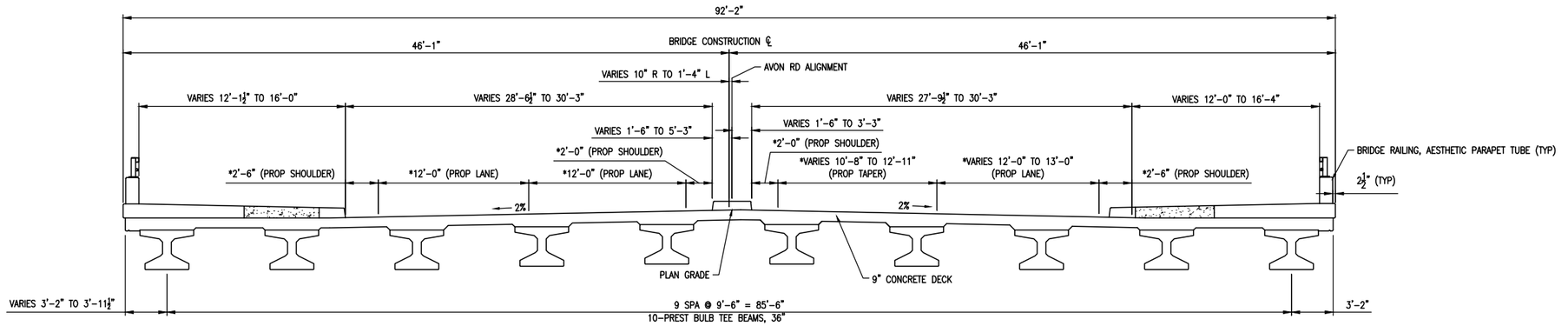
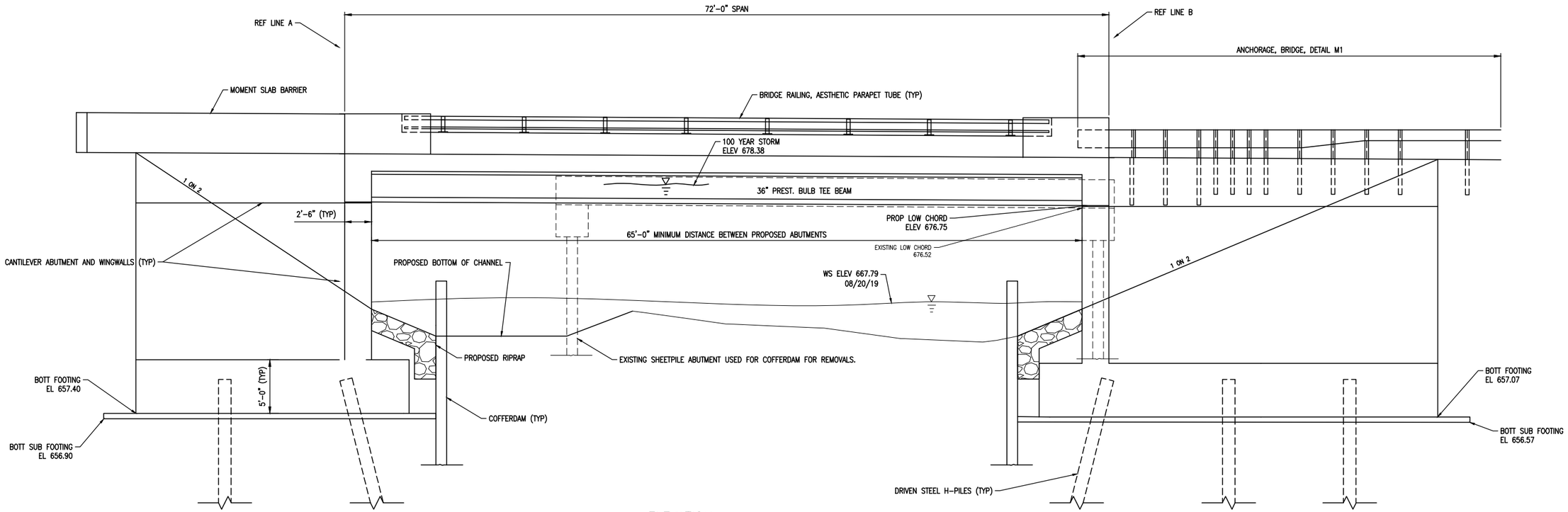


TYPICAL DECK SECTION

* MEASURED PERPENDICULAR TO PROPOSED AVON RD ALIGNMENT



ELEVATION

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DATE 10/15/2020 | PROJ NUMBER 0170-19-0060 | DES BKG | DRN DC | CHKD PROJ MGR | CHKD COUNTY OAKLAND | CHKD CITY/VILLAGE/TOWNSHIP ROCHESTER HILLS | SCALE H: 1"=40' V: 1"=4' | HORIZ DATUM NAD83 (2007) | VERT DATUM NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER
BRIDGE DETAILS

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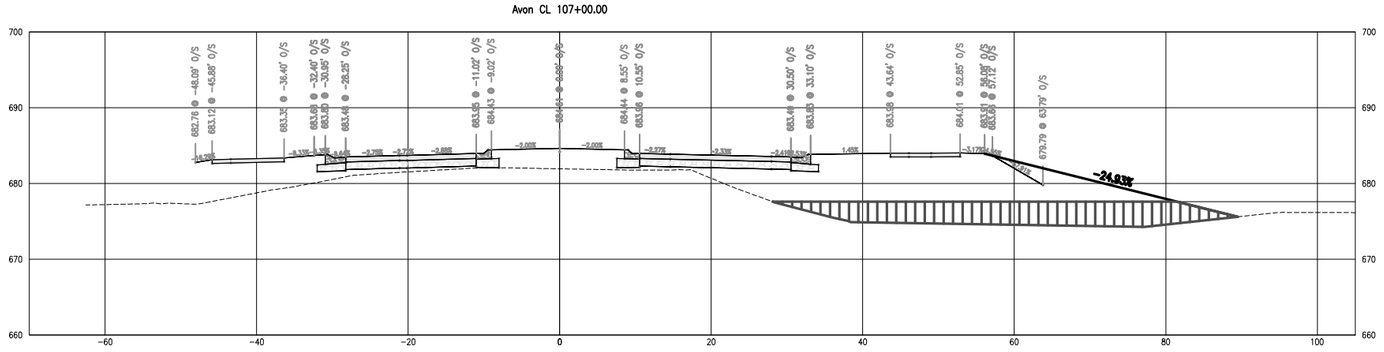

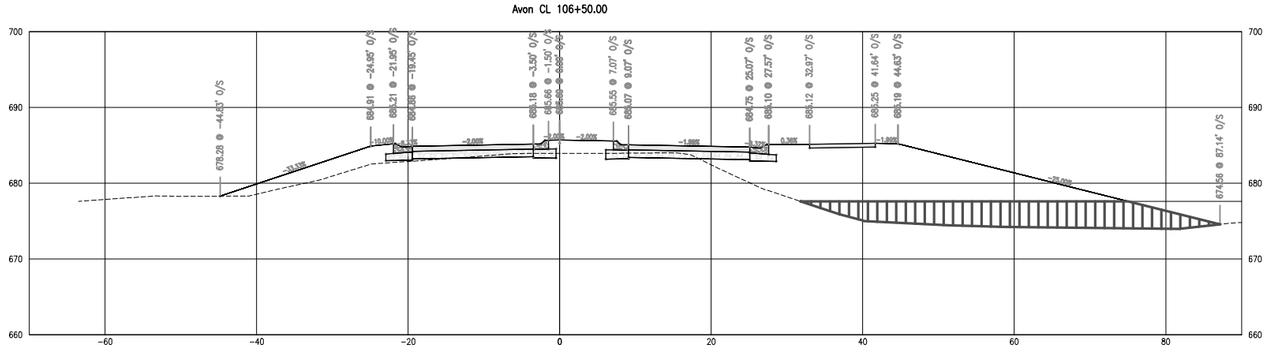

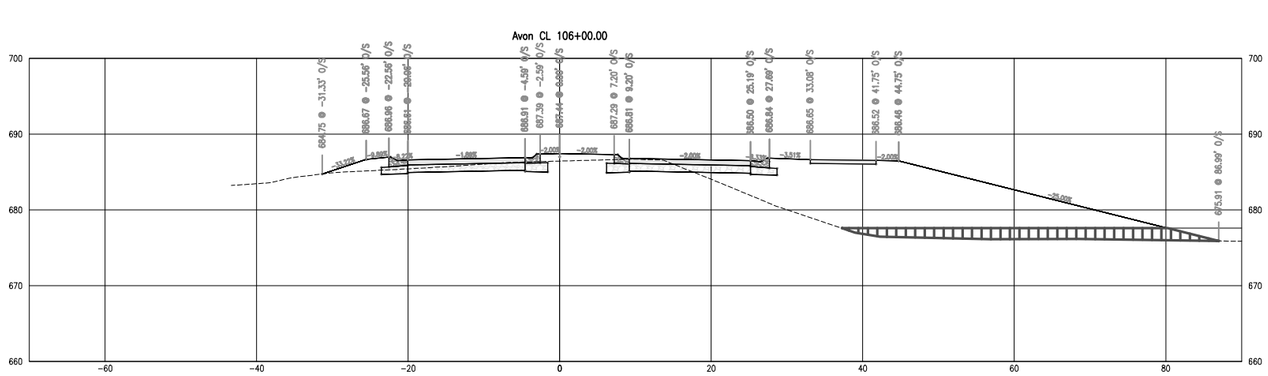

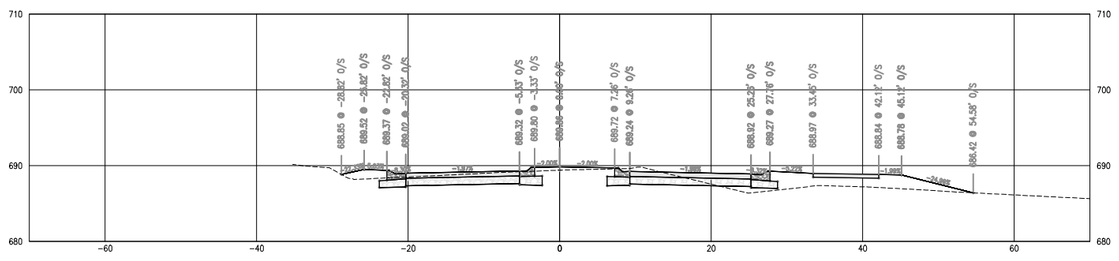

LEGEND

- 100 YR FLOODPLAIN FILL
- 100 YR FLOODPLAIN EXCAVATION
- WETLAND FILL
- WETLAND EXCAVATION

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DATE: 07/15/2020 | PROJ NUMBER: 0170-19-0060 | ENG: DC | PROJ MGR: JK | CADD: JW | COUNTY: OAKLAND | CITY/VILLAGE/TOWNSHIP: ROCHESTER HILLS | SCALE: H: 1"=40' V: 1"=4 | HORIZONTAL DATUM: NAD83 (2007) | VERT DATUM: NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

CROSS SECTIONS

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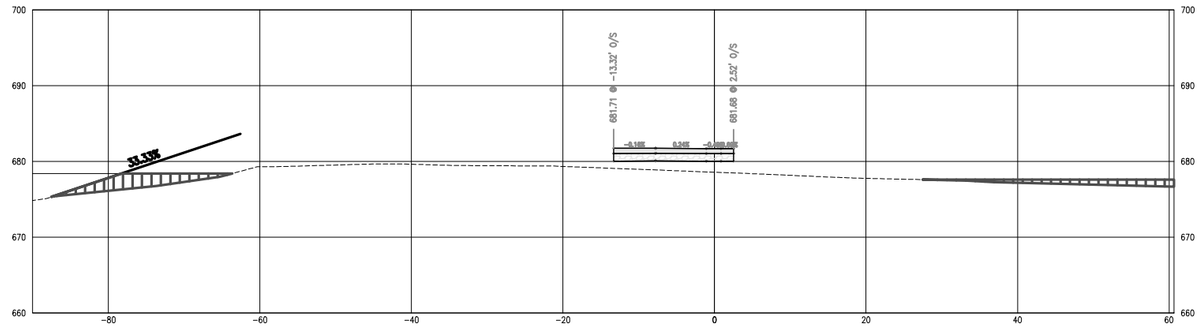
LEGEND

- 100 YR FLOODPLAIN FILL
- 100 YR FLOODPLAIN EXCAVATION
- WETLAND FILL
- WETLAND EXCAVATION

Avon CL 108+50.00



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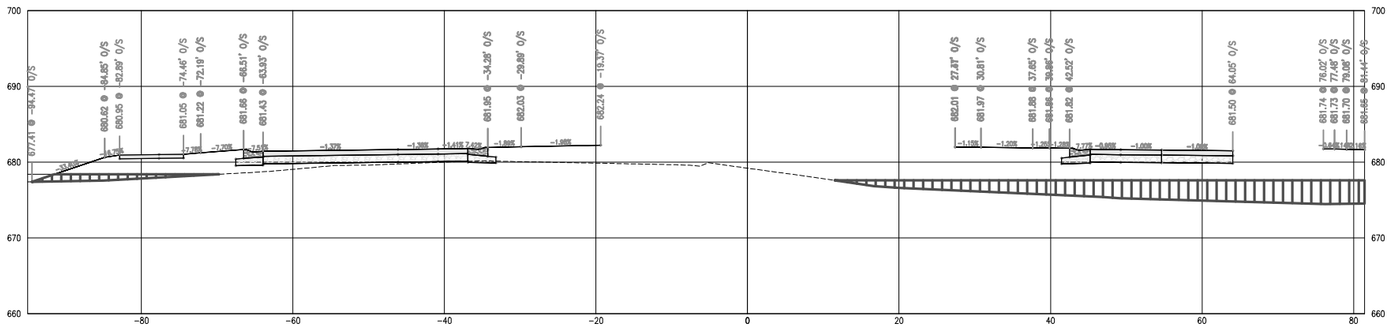

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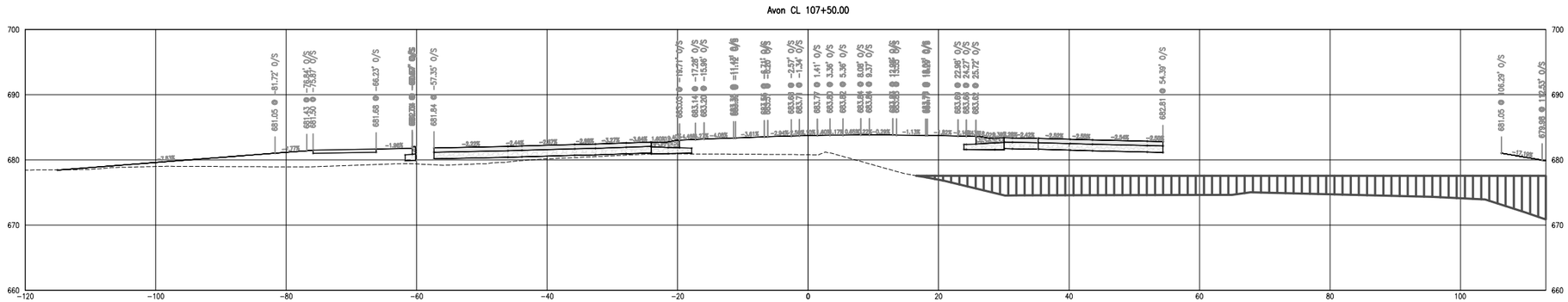

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DATE: 10/15/2020
PROJ NUMBER: 0170-19-0060
PROJ MGR: EVG
DES: DC
CADD: JK
CHK: JM
COUNTY: OAKLAND
CITY/VILLAGE/TOWNSHIP: ROCHESTER HILLS
SCALE: H: 1"=40' V: 1"=4'
HORIZ DATUM: NAD83 (2007)
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ROAD COMMISSION FOR OAKLAND COUNTY
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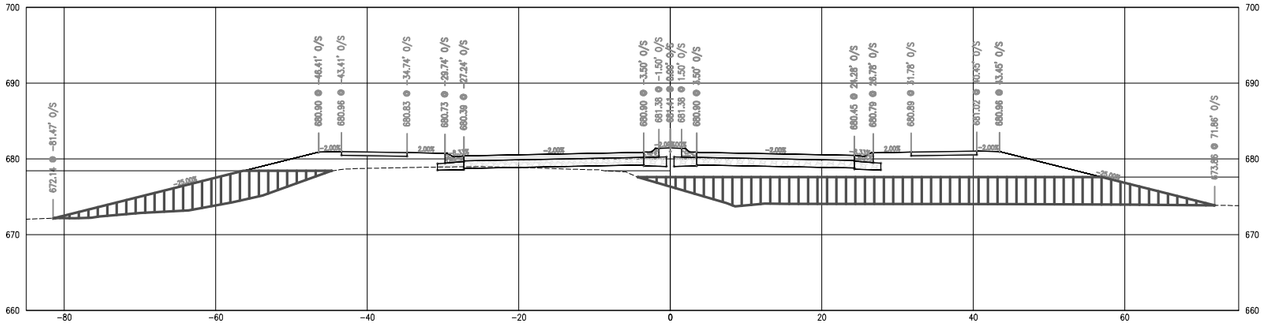
- 100 YR FLOODPLAIN FILL
- 100 YR FLOODPLAIN EXCAVATION
- WETLAND FILL
- WETLAND EXCAVATION

Avon CL 110+00.00



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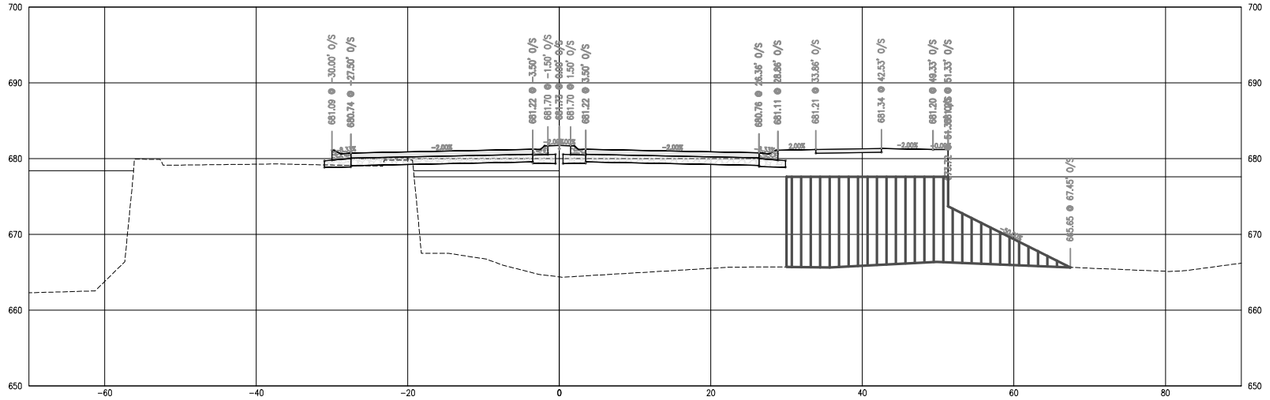

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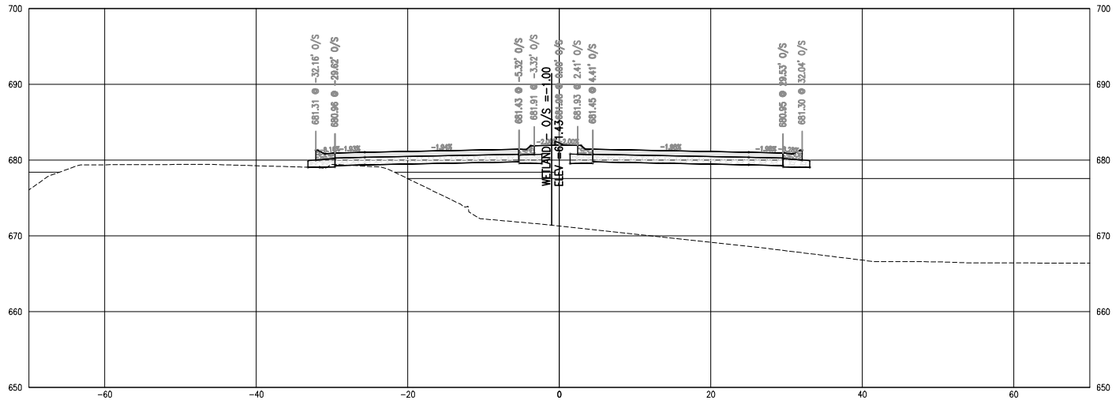

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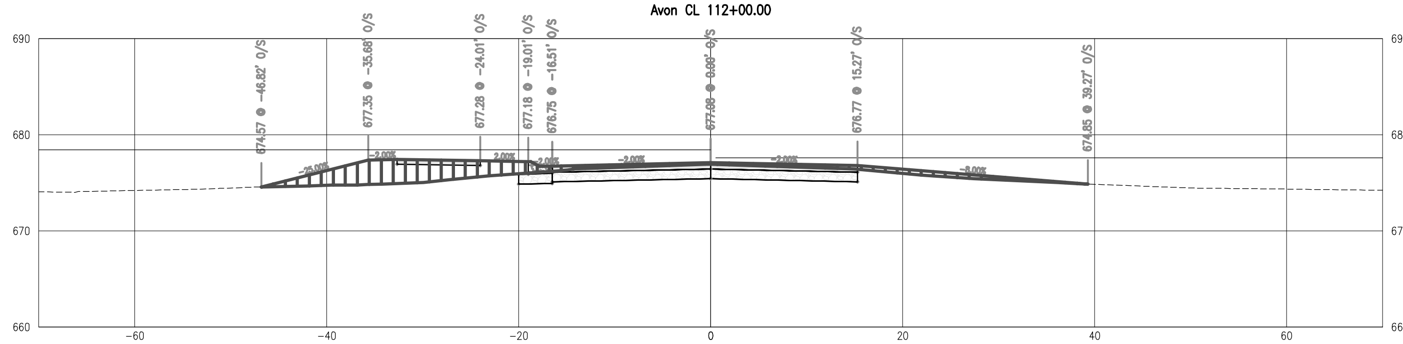

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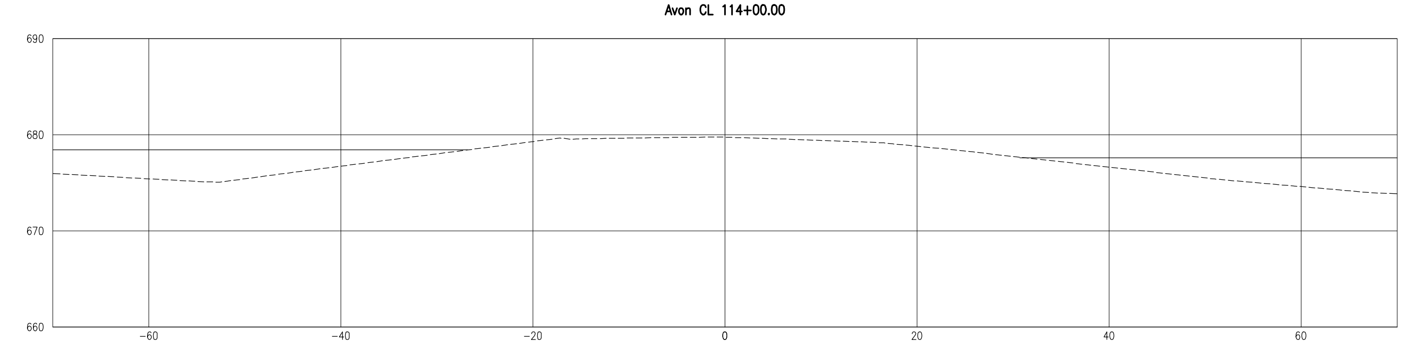

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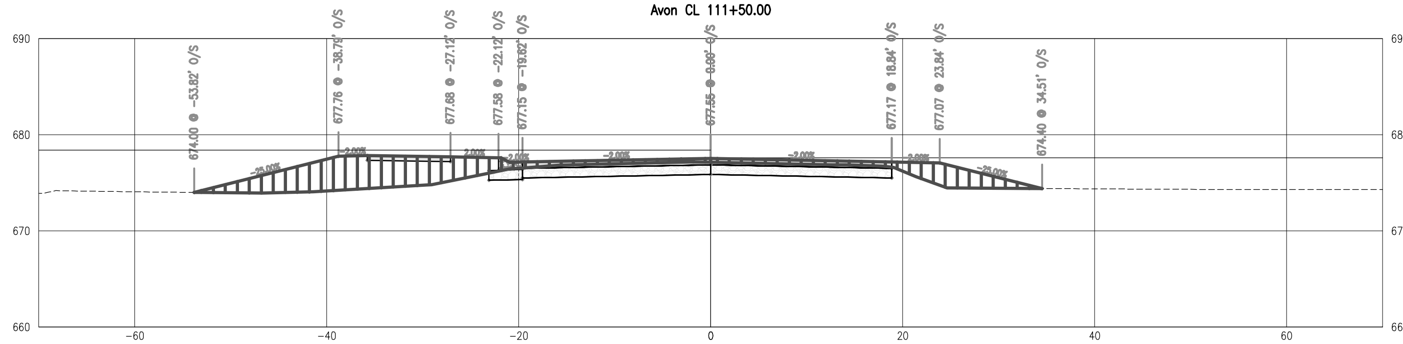

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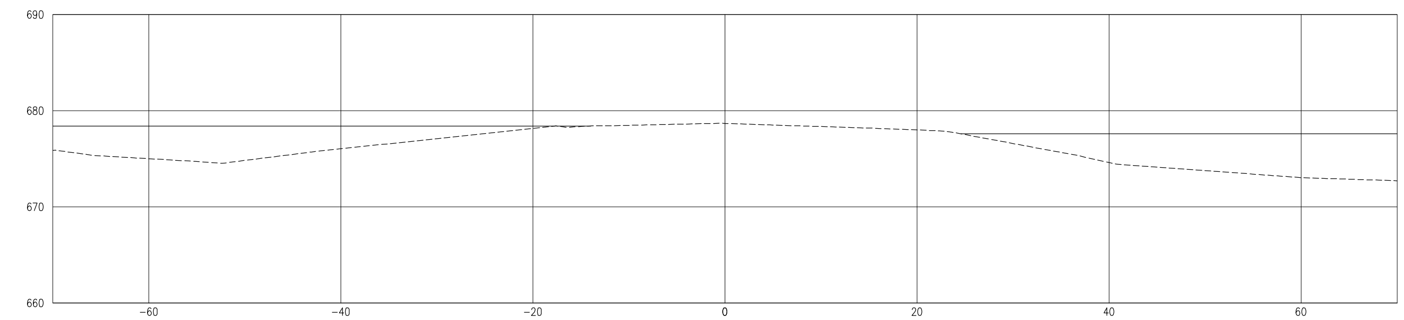

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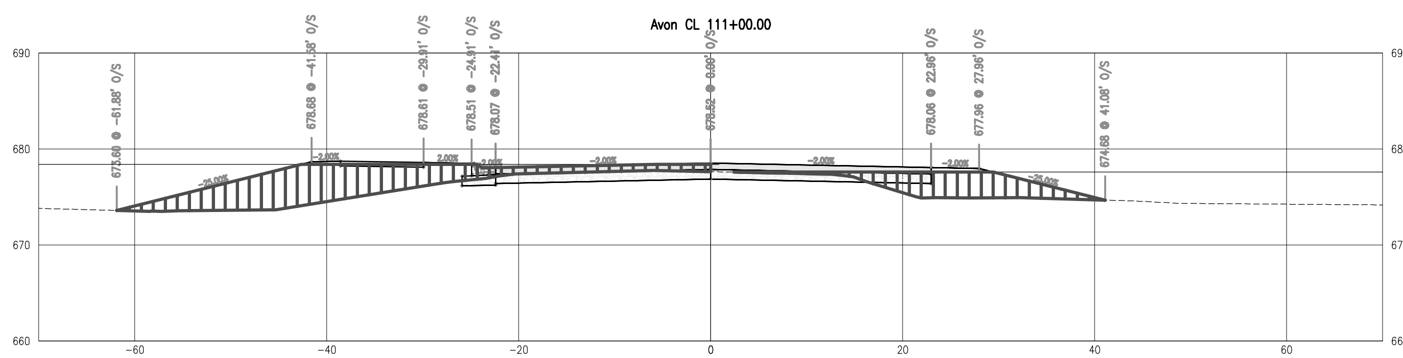

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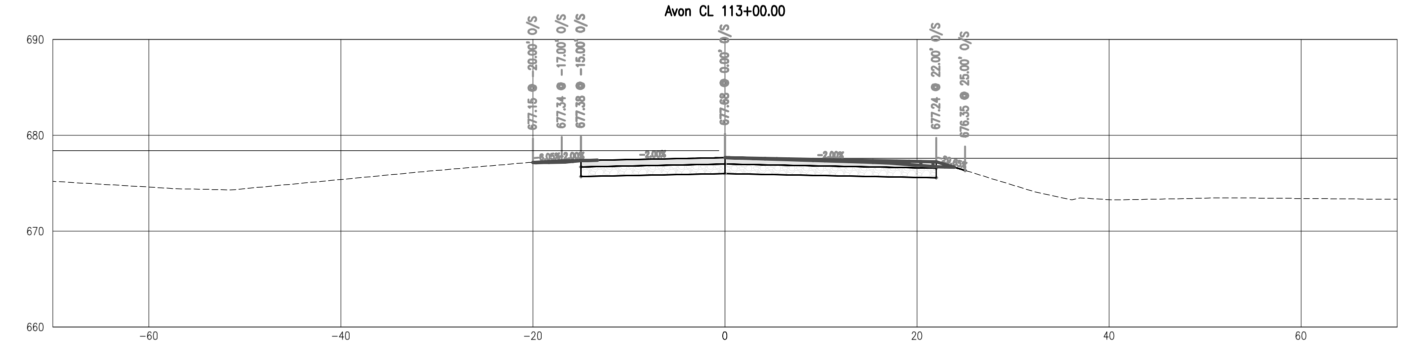

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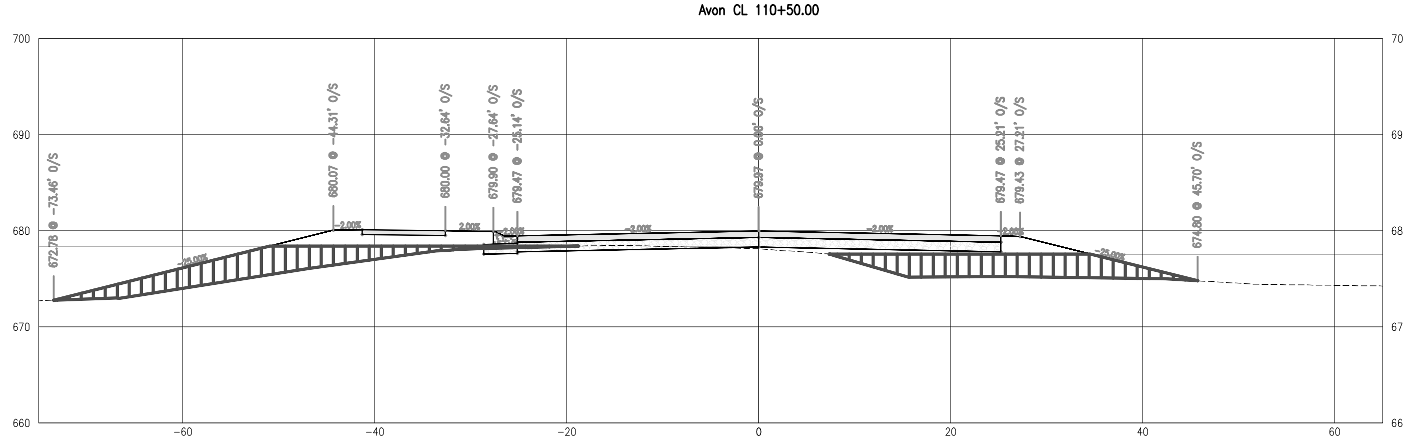

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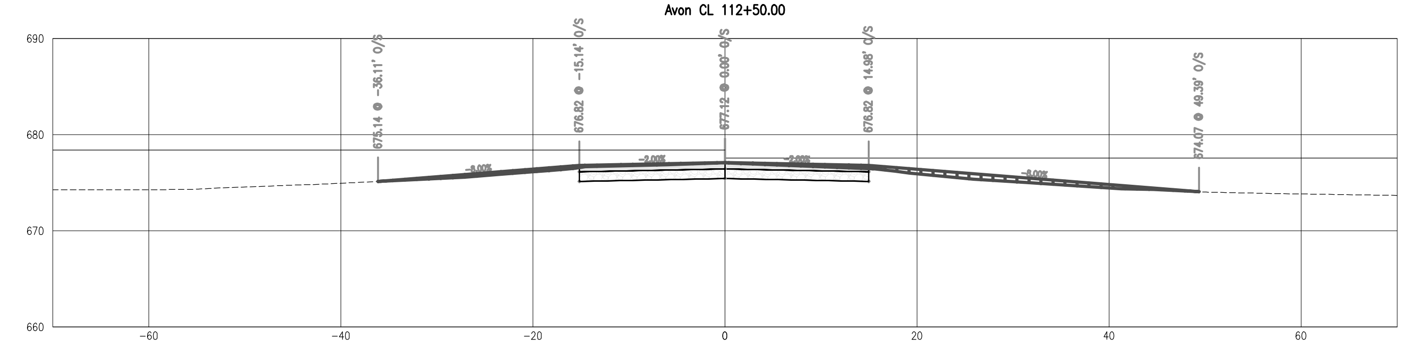

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CROSS SECTIONS

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LEGEND

- 100 YR FLOODPLAIN FILL
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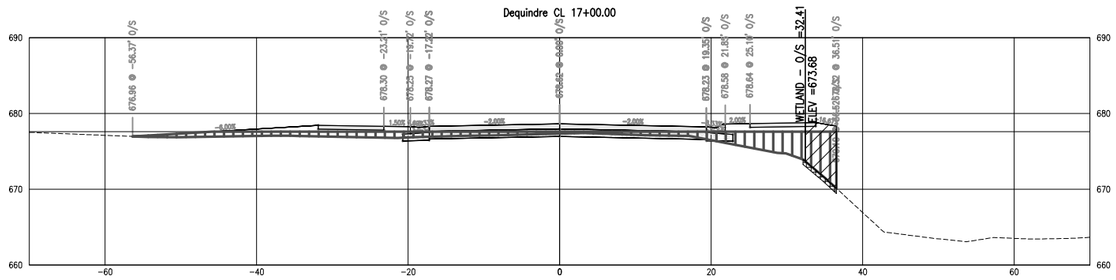
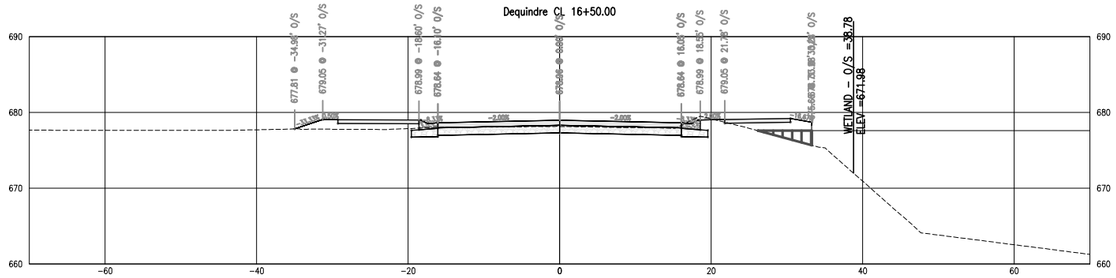
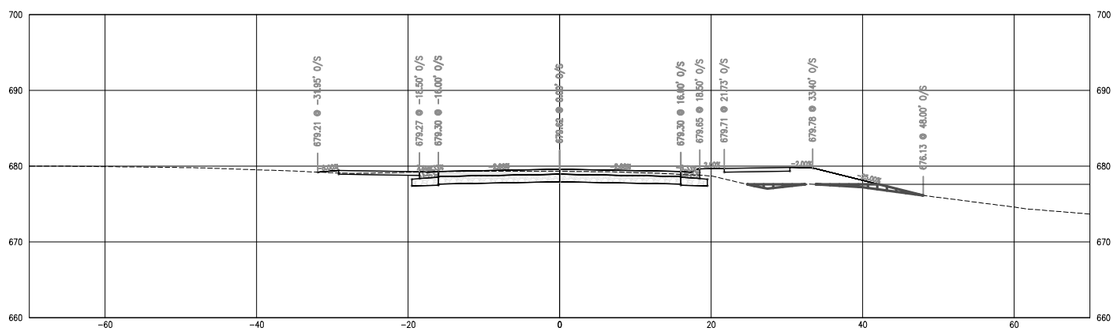
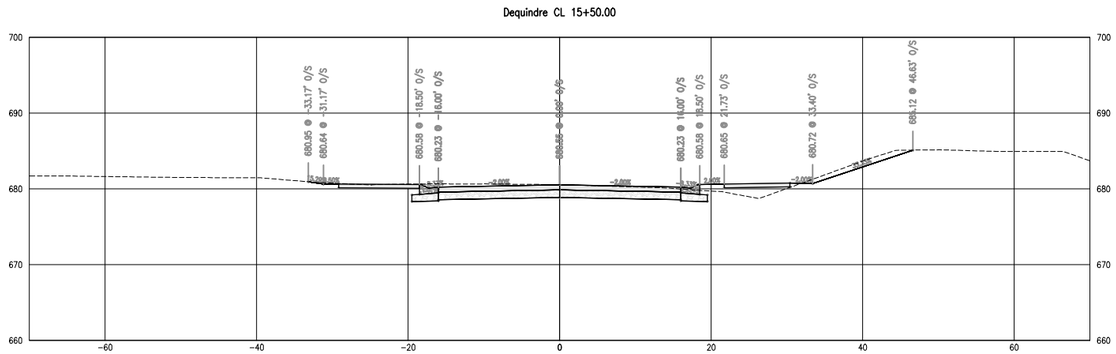
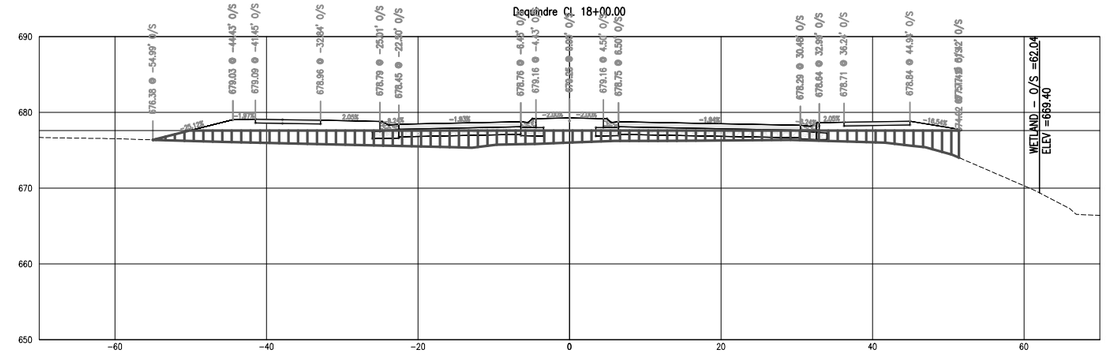
- WETLAND FILL
- WETLAND EXCAVATION

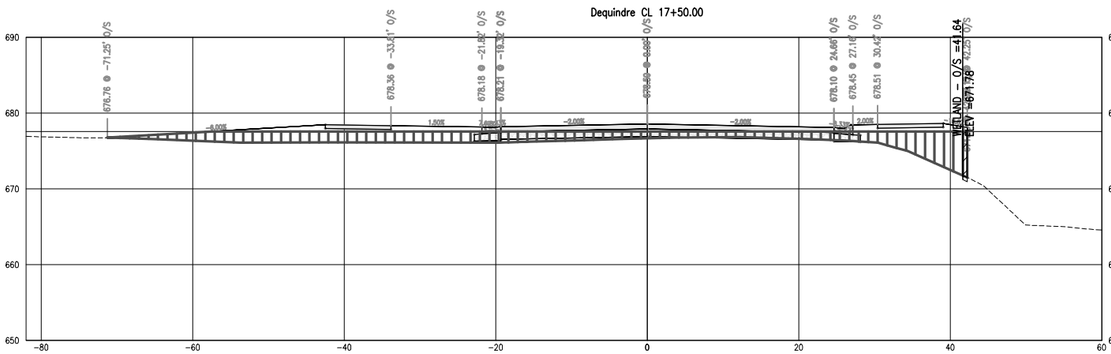












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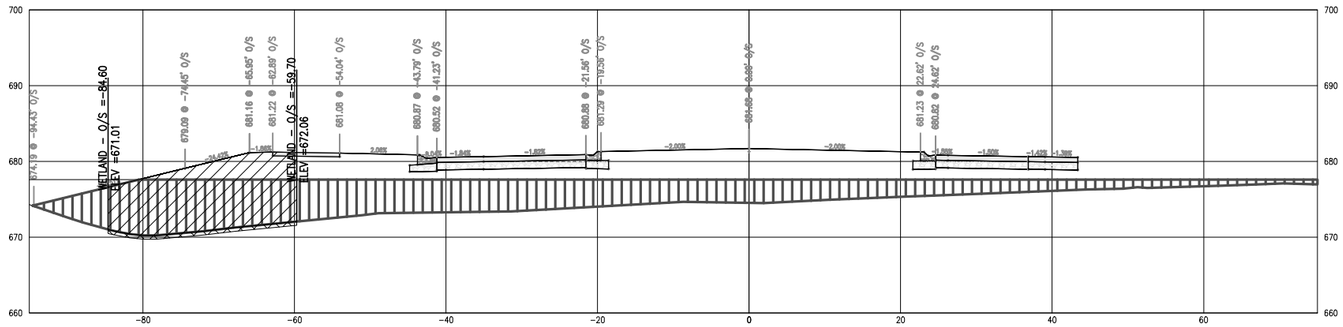
- 100 YR FLOODPLAIN EXCAVATION
- WETLAND FILL
- WETLAND EXCAVATION

Dequindre CL 19+50.00



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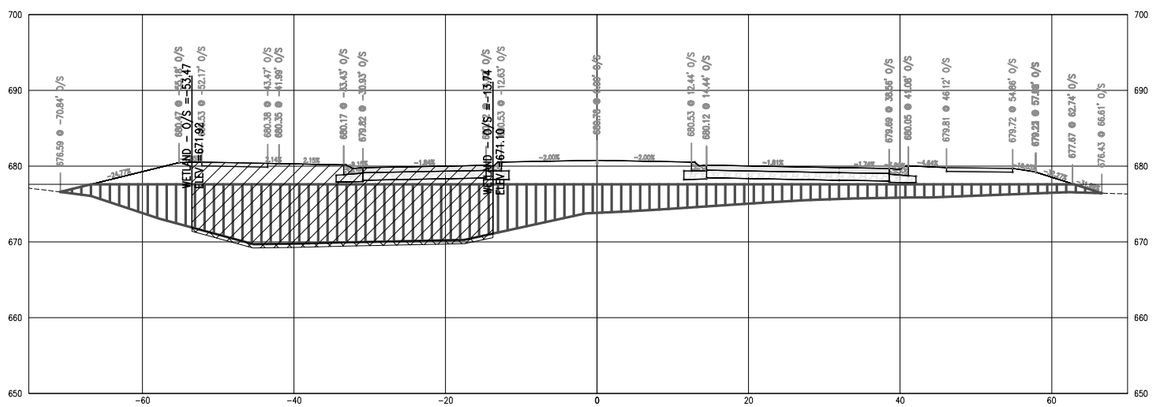

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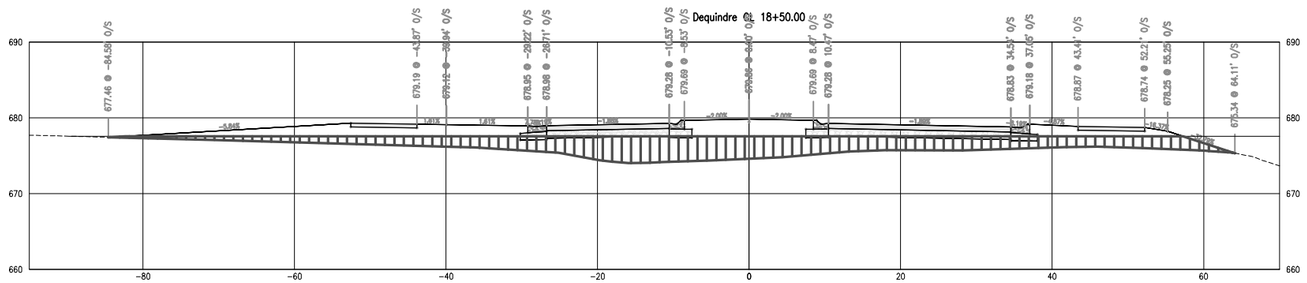

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REVISIONS:

DATE	PROJ NUMBER	DES	PROJ MGR	CADD	COUNTY	CITY/VILLAGE/TOWNSHIP	SCALE		HONE DATUM	VERT DATUM
10/15/2020	0170-19-0060	DC	JK	JM	OAKLAND	ROCHESTER HILLS	H: 1"=40'	V: 1"=4'	NAD83 (2007)	NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER
CROSS SECTIONS

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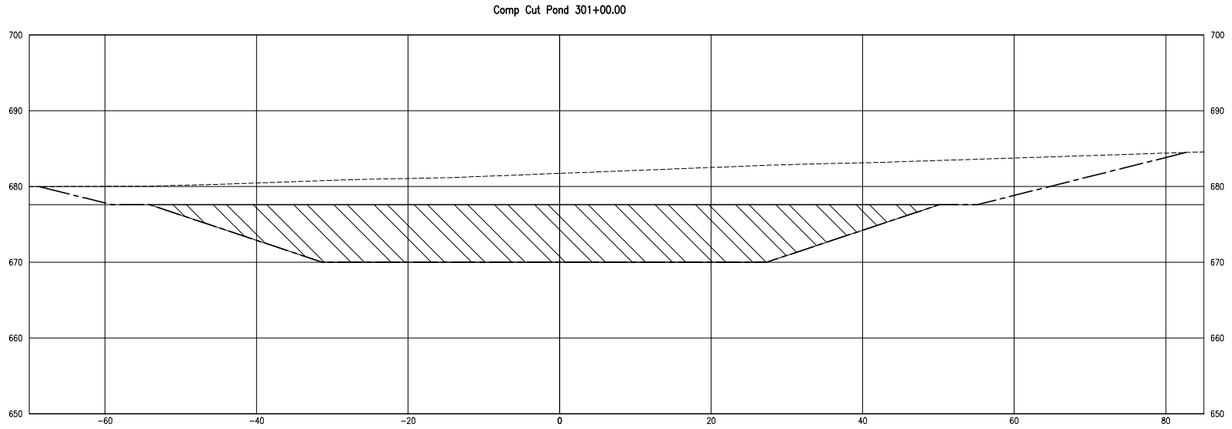
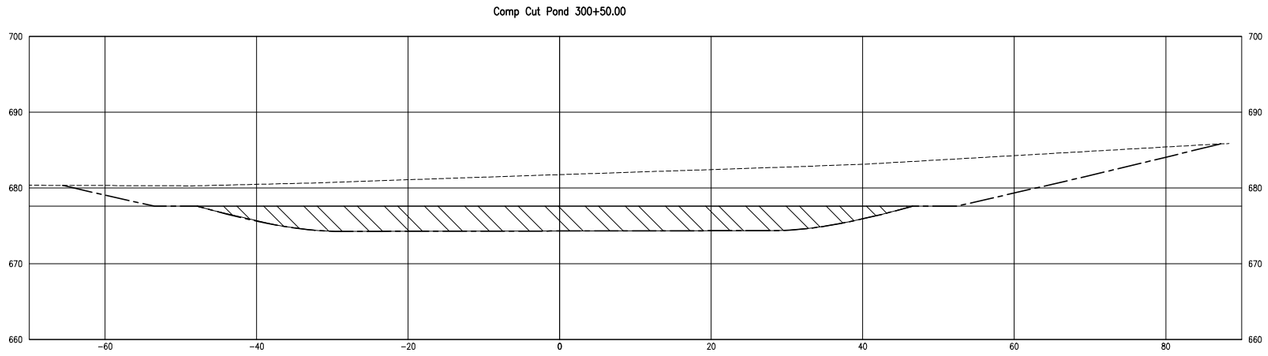
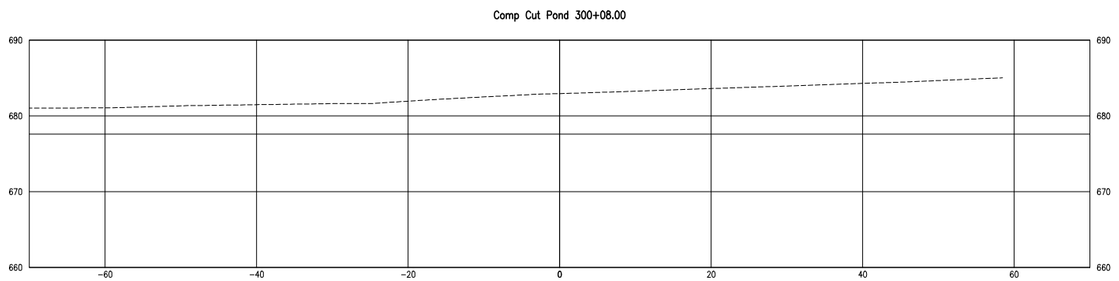
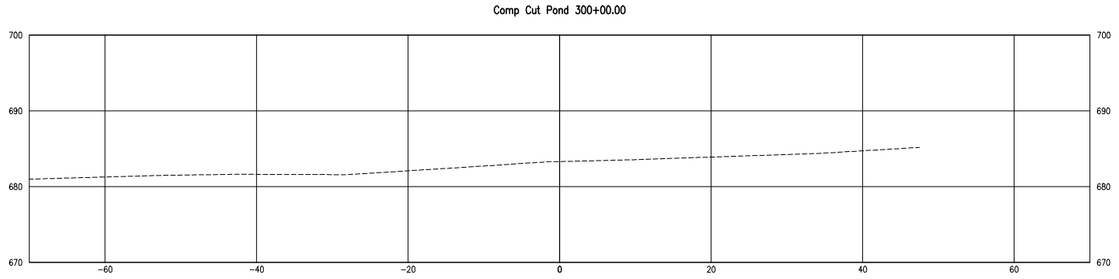
Issued On:12/22/2020
Expires On:12/22/2025









LEGEND

- 100 YR FLOODPLAIN FILL
- 100 YR FLOODPLAIN EXCAVATION
- WETLAND FILL
- WETLAND EXCAVATION

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REVISIONS:

DATE: 07/15/2020
PROJ NUMBER: 0170-190060
DES: DC
PROJ MGR: JK
CADD: JW
COUNTY: OAKLAND
CITY/VILLAGE/TOWNSHIP: ROCHESTER HILLS
SCALE: H: 1"=40' V: 1"=4'
HORIZ DATUM: NAD83 (2007)
VERT DATUM: NAVD88 (GEOID03)

ROAD COMMISSION FOR OAKLAND COUNTY
EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

SHEET 37 OF 38

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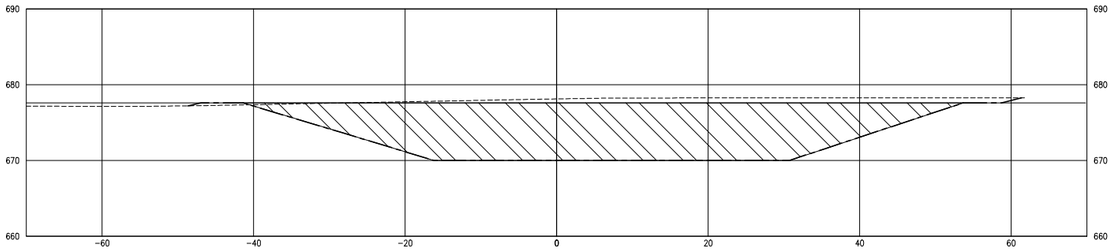
Comp Cut Pond 303+00.00



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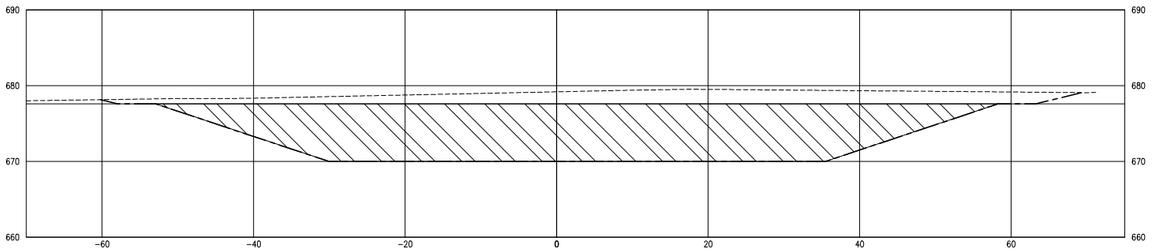

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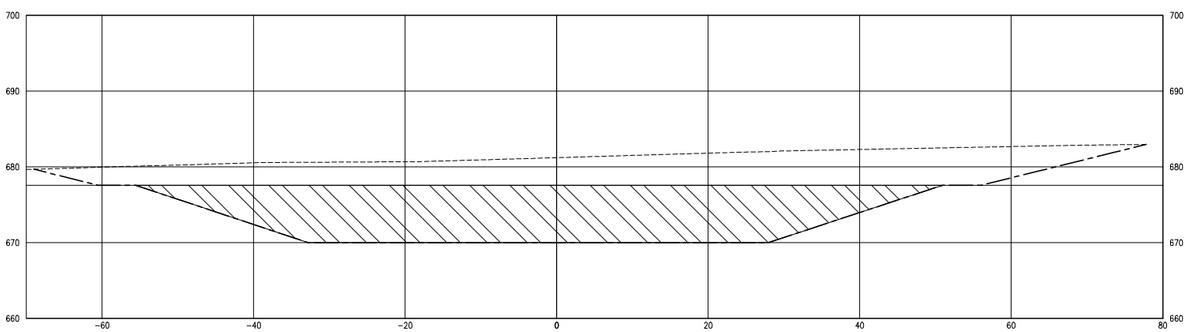
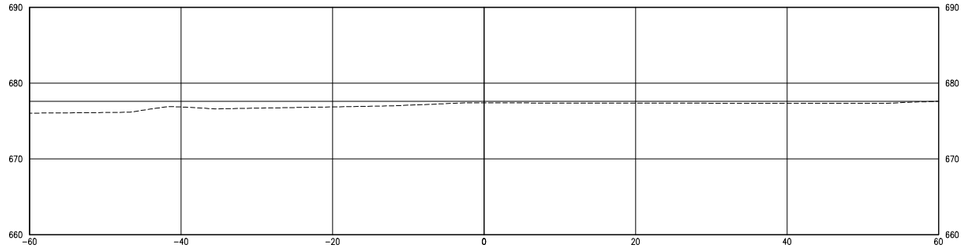


LEGEND

- 100 YR FLOODPLAIN FILL
- 100 YR FLOODPLAIN EXCAVATION
- WETLAND FILL
- WETLAND EXCAVATION

Comp Cut Pond 303+50.00



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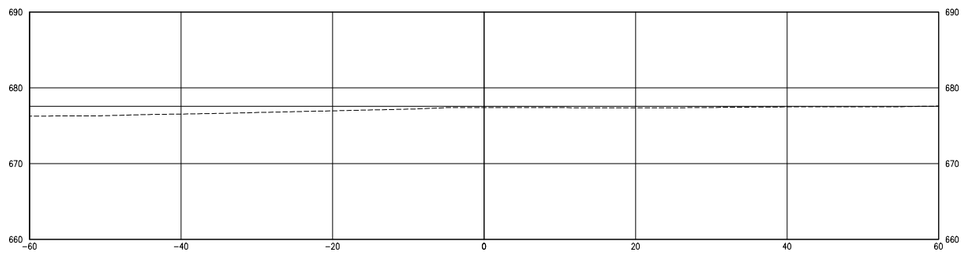

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REVISIONS:

DATE: 10/15/2020
PROJ NUMBER: 0170-19-0060
DES: DC
PROJ MGR: JK
CADD: JM
COUNTY: OAKLAND
CITY/VILLAGE/TOWNSHIP: ROCHESTER HILLS
SCALE: H: 1"=40' V: 1"=4'
HORZ DATUM: NAD83 (2007)
VERT DATUM: NAVD88 (GEOID03)

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EAST AVON ROAD AT DEQUINDRE ROAD ROUNDABOUT & BRIDGE OVER THE CLINTON RIVER

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