

# E.D.S.I.

2960 BOND STREET ROCHESTER HILLS, MI 48307

## BUILDING ADDITION

### Structural Design Criteria:

- THESE GENERAL NOTES APPLY TO THESE STRUCTURAL DRAWINGS AND SUPPLEMENT THE PROJECT SPECIFICATIONS. REFER TO THE PROJECT MANUAL FOR ADDITIONAL REQUIREMENTS.
- THIS PROJECT IS LOCATED IN STERLING HEIGHTS MICHIGAN AND HAS BEEN DESIGNED IN ACCORDANCE WITH THE 2009 EDITION OF THE MICHIGAN BUILDING CODE (INCLUDING APPLICABLE AMENDMENTS AND SUPPLEMENTS).
- DESIGN LOADS:

#### EARTHQUAKE LOADS (MICH. BLD. 2009 SEC. 1614.0)

SEISMIC USE GROUP: 1 SEISMIC DESIGN CATEGORY "B"  
 SPECTRAL IMPORTANCE FACTOR:  $I_s = 1.25$   
 MAPPED SPECTRAL RESPONSE ACCELERATIONS:  $S_s = 0.112, S_1 = 0.043$   
 SITE CLASS: "D"  
 MAPPED SPECTRAL RESPONSE COEFFICIENTS:  $S_{ds} = 0.119, S_{d1} = 0.07$   
 DESIGN BASE SHEAR:  $V_n = 23$  KIPS  
 $V_e = w = 31$  KIPS  
 SEISMIC RESPONSE COEFFICIENT:  $C_s = 0.050$   
 RESPONSE MODIFICATION FACTOR:  $R = 3$

BASIC SEISMIC-FORCE-RESISTING SYSTEM: R=3

#### WIND LOADS (MICH. BLD. 2009)

BASIC WIND SPEED: 90 MPH  
 WIND LOAD IMPORTANCE FACTOR: 1  
 WIND EXPOSURE: B  
 CATEGORY: II  
 HGT. & EXPOSURE ADJUSTMENT FACTOR = 1.0  
 CLADDING: 19 PSF (Zone 4) 22 PSF (Zone 5)  
 (TYP. ALL WALLS)

ROOF LIVE LOAD = 30 PSF  
 ROOF DEAD LOAD = 25 PSF

### Masonry Specifications:

- ALL MASONRY WORK SHALL BE IN ACCORDANCE WITH ACI 530-02, AND SPECIFICATIONS FOR MASONRY STRUCTURES ACI 530. 1-02. CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C-90, CONCRETE MASONRY UNITS, BRICK SHALL MEET THE LATEST REVISIONS OF ASTM C216, GRADE SW.
- ALL MORTAR SHALL CONFORM TO ASTM C270, TYPE M OR S, MINIMUM COMPRESSIVE STRENGTH  $f'_m = 1800$  PSI AT 28 DAYS.
- ALL CONCRETE MASONRY UNITS SHALL HAVE A MINIMUM PRISM STRENGTH OF 1500 PSI.
- EXPANSION JOINTS FOR BRICK MASONRY SHALL BE PLACED AT 20'-0" TO 30'-0" O.C. MAXIMUM.
- CONTROL JOINTS FOR CONCRETE MASONRY SHALL BE PLACED AT 30'-0" O.C. MAXIMUM, U.N.O.
- ALL CONCRETE BLOCK WALLS SHALL HAVE "BUR-O-WAL" OR EQUIVALENT TRUSS-TYPE HORIZONTAL REINFORCING INSTALLED AT EVERY OTHER COURSE. HORIZONTAL WIRE REINFORCEMENT SHALL BE #9 CA. WIRE WITH ASTM A641 GALVANIZED COATING UNLESS NOTED OTHERWISE. WALLS WITH VERTICAL REINFORCEMENT SHALL HAVE ONLY "LADDER" TYPE REINFORCEMENT. DO NOT EXTEND HORIZONTAL REINFORCING THROUGH CONTROL JOINTS.
- INSTALL VERTICAL REINFORCING (AS NOTES OF PLANS) IN THE CENTER OF BLOCK CORES AND GROUT IN MAXIMUM OF FOUR FOOT HEIGHTS. ALL REINFORCING STEEL SHALL BE ASTM G15 GRADE 60. LAP AND TIE BAR SPLICES SHALL BE PLACED IN ACCORDANCE WITH ACI 530-02.
- ALL BRICK WORK SHALL HAVE PROPER TIES TO THE STRUCTURE IN ACCORDANCE WITH THE MOST RECENT SPECIFICATIONS OF THE BRICK INSTITUTE OF AMERICA.
- THE MASONRY CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF TEMPORARY SHORING AND FALSE WORK REQUIRED TO WITHSTAND WIND LOADS AND TEMPORARY CONSTRUCTION LOADS. ALL WORK PERFORMED SHALL BE IN ACCORDANCE WITH ALL OSHA REQUIREMENTS.
- ALL BEAMS BEARING ON MASONRY WALLS SHALL HAVE A 7 1/2" x 7 1/2" x 5/8" BEARING PLATE WITH TWO 1/2" DIAMETER x 12" LONG ANCHOR BOLTS, U.N.O. THE TOP THREE COURSES OF BLOCK BELOW THE BEARING SHALL BE GROUTED SOLID.
- ALL LINTELS BEARING ON MASONRY SHALL HAVE 12" MINIMUM BEARING AT EACH END. STEEL BEAM LINTELS SUPPORTING MASONRY FROM THE BOTTOM FLANGE SHALL HAVE A CONTINUOUS 5/16" STEEL PLATE WELDED TO THE BOTTOM FLANGE AS REQUIRED.
- WITH CONCRETE OR MASONRY BACKING, ANCHOR TIES SHALL BE NOT LESS THAN 0.1005 IN (2.68 MM) CORROSION-RESISTANT WIRE, OR APPROVED EQUAL FORMED BEYOND THE BASE OF THE BACKING. THE LEGS OF THE LOOPS SHALL NOT BE LESS THAN 6" (152 MM) IN LENGTH BENT AT RIGHT ANGLES AND LAID IN THE MORTAR JOINT, AND SPACING SO THAT THE EYES OR LOOPS ARE 12" MAXIMUM O.C. IN BOTH DIRECTIONS. THERE SHALL BE PROVIDED NO LESS THAN A 0.1055 (2.68 MM) CORROSION RESISTANT WIRE TIE, OR APPROVED EQUAL, THREADED THROUGH THE EXPOSED LOOPS FOR EVERY 2 SQ. FT. OF STONE VERNIER.

### REINFORCING STEEL NOTES:

- ALL REINFORCING BARS, DOWELS, AND TIES SHALL CONFORM WITH OTHERWISE.
- ALL WELDED WIRE FABRIC SHALL CONFORM WITH ASTM A-185 AND BE POSITIONED AT THE MID HEIGHT OF SLABS, UNLESS NOTED OTHERWISE.
- ALL REINFORCING SHALL BE PLACED AND SECURELY TIED IN PLACE SUFFICIENTLY AHEAD OF PLACING OF CONCRETE TO ALLOW INSPECTION AND CORRECTION, IF NECESSARY, WITHOUT DELAYING THE CONCRETE PLACEMENT.
- EXTEND ALL REINFORCING BARS A MINIMUM OF 36" AROUND ALL CORNERS AND LAP BARS AT ALL SPLICES A MINIMUM OF 30" UNLESS NOTED OTHERWISE.
- WELDING OF REINFORCING STEEL IS NOT ALLOWED.

### Structural Concrete:

- CONCRETE HAS BEEN DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE (ACI). REFER TO THE "FIELD OBSERVATIONS" PARAGRAPH OF THESE GENERAL NOTES FOR OBSERVATION REQUIREMENTS. ALL CONCRETE SHALL BE OF STONE AGGREGATE, UNLESS NOTED OTHERWISE. REFER TO THE PROJECT MANUAL AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS (DURABILITY, COLOR, FINISH, ETC.). THE USE OF ANY CONCRETE ADDITIVE CONTAINING CHLORIDES IS PROHIBITED.
- MINIMUM 28-DAY COMPRESSIVE STRENGTH SHALL BE AS FOLLOWS:
 

|                        |           |
|------------------------|-----------|
| A. FOUNDATIONS         | 3,000 PSI |
| B. SLABS ON GRADE      | 4,000 PSI |
| C. SLABS ON STEEL DECK | 4,000 PSI |
| D. TOPPING SLABS       | 4,000 PSI |
| E. ALL OTHER CONCRETE  | 3,000 PSI |
- REINFORCING IS TO BE NEW BILLET STEEL ASTM A615 GRADE 60 (FIELD BENT OF WELDED BARS SHALL BE ASTM A706, GRADE 60). NO WELDING OF REINFORCEMENT IS PERMITTED UNLESS DETAILED. NO SPLICES OF REINFORCEMENT ARE PERMITTED EXCEPT AS DETAILED BY STRUCTURAL ENGINEER. PROVIDE CORNER AND BARS TO MATCH ALL HORIZONTAL REINFORCING. PROVIDE MINIMUM (2) #5 BARS AROUND ALL SIDES OF ALL OPENINGS IN CONCRETE AND EXTEND 2'-0" MINIMUM PAST EDGES OF OPENINGS. WHERE PERMITTED, USE CONTRACT LAP SPLICES (40 BAR DIAMETERS MINIMUM LAP). WELDED WIRE FABRIC (W.W.F.) SHALL BE IN ACCORDANCE WITH ASTM A185. PROVIDE A MINIMUM (1) FULL MESH LAP AT SPLICES LOCATIONS.
- PLACING OF REINFORCEMENT: FORM TIES ARE TO BE USED FOR BAR SUPPORTS ONLY WHEN THE CLEAR DIMENSIONS SHOWN ON THE DETAILS CAN BE MAINTAINED. PROVIDE WIRE CHAIRS, BOLSTERS, ADDITIONAL REINFORCEMENT AND ACCESSORIES NECESSARY TO SUPPORT REINFORCEMENT AT POSITION SHOWN IN STRUCTURAL DRAWINGS. SUPPORT OF REINFORCEMENT ON WOOD, BRICK OR OTHER UNACCEPTABLE MATERIAL WILL NOT BE PERMITTED.
- THE FOLLOWING MINIMUM CONCRETE COVER OVER REINFORCING SHALL BE PROVIDED UNLESS NOTED OTHERWISE:
 

|   |              |
|---|--------------|
| A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH     | 3 INCHES     |
| B. CONCRETE EXPOSED TO EARTH OR WEATHER (#6 BARS AND LARGER)  | 2 INCHES     |
| C. CONCRETE EXPOSED TO EARTH OR WEATHER (#5 BARS AND SMALLER) | 1 1/2 INCHES |
| D. CONCRETE NOT EXPOSED TO EARTH OR WEATHER                   | 3/4 INCH     |
| E. BEAMS AND COLUMNS  | 1 1/2 INCHES |

### STRUCTURAL DESIGN REFERENCES:

AMERICAN CONCRETE INSTITUTE (ACI); ACI 301-99, ACI 318-99, ACI 530-02  
 AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC); ASD 9th EDITION  
 AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC); 4th EDITION  
 AMERICAN IRON AND STEEL INSTITUTE (AISI)  
 AMERICAN PLYWOOD ASSOCIATION (APA)  
 AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE); ASCE 7-98  
 AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM)  
 AMERICAN WELDING SOCIETY (AWS)  
 NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS); 1997 EDITION  
 STEEL DECK INSTITUTE (SDI)  
 STEEL JOIST INSTITUTE (SJI)  
 MICHIGAN BUILDING CODE (MBC)

### Coordination:

- DIMENSIONS: WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS. ALL DIMENSIONS NOTED WITHIN THE STRUCTURAL DRAWINGS SHALL BE VERIFIED WITH THE ARCHITECTURAL DRAWINGS. REFER TO MECHANICAL, ELECTRICAL, PLUMBING, AND ARCHITECTURAL DRAWINGS FOR OPENINGS NOT NOTED WITHIN THE STRUCTURAL DRAWINGS. ANY DIMENSIONAL DISCREPANCIES SHALL BE NOTED IN WRITING FOR REVIEW BY THE ARCHITECT AND STRUCTURAL ENGINEER.
- SHOP DRAWINGS: SHOP DRAWINGS SHALL BE PREPARED BY THE FABRICATOR. COPY OF THESE CONSTRUCTION DOCUMENTS FOR USE AS SHOP DRAWINGS WILL BE PERMITTED.
- FIELD VERIFICATION: THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF WORK, AND SHALL NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER FOR ANY INTERPRETATION OR CLARIFICATION. THESE CONSTRUCTION DOCUMENTS WERE PREPARED WITH INFORMATION ABOUT THE EXISTING BUILDING PROVIDED BY OTHERS. LIMITED INVESTIGATION OF THE EXISTING STRUCTURE WAS UNDERTAKEN. IF THE CONTRACTOR DISCOVERS EXISTING CONDITIONS WHICH VARY FROM THOSE SHOWN ON THESE DOCUMENTS HE SHALL NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER IMMEDIATELY FOR FURTHER CLARIFICATION.
- FIELD MODIFICATIONS TO STRUCTURAL MEMBERS: THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE ARCHITECT'S AND STRUCTURAL ENGINEER'S APPROVAL PRIOR TO ANY CUTTING, NOTCHING, DRILLING OR OTHER MODIFICATIONS WHICH MAY AFFECT THE INTEGRITY OF THE STRUCTURE. WHEN SUCH MODIFICATIONS HAVE BEEN APPROVED, THEY ARE TO BE COMPLETED IN ACCORDANCE WITH APPLICABLE BUILDING CODES AND MANUFACTURER'S INSTRUCTIONS.
- DUTY OF COOPERATION: ISSUANCE OF THESE DOCUMENTS PRESUPPOSES FURTHER COOPERATION AMONG THE OWNER, CONTRACTOR, ARCHITECT AND STRUCTURAL ENGINEER. BUILDING DESIGN AND CONSTRUCTION ARE COMPLEX, AND EVERY CONTINGENCY CANNOT BE ANTICIPATED. ALTHOUGH THE ARCHITECT AND STRUCTURAL ENGINEER HAVE PERFORMED THEIR SERVICES WITH DUE CARE AND DILIGENCE, THEY CANNOT GUARANTEE PERFECTION. ANY AMBIGUITY OR DISCREPANCY DISCOVERED THROUGH THE USE OF THESE DOCUMENTS SHALL BE PROMPTLY REPORTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR FURTHER CLARIFICATION. FAILURE TO DO SO MAY COMPOUND MISINTERPRETATION AND INCREASE CONSTRUCTION COSTS, AND SUCH FAILURE SHALL RELIEVE THE STRUCTURAL ENGINEER OF RESPONSIBILITY FROM CONSEQUENCES WHICH MAY ARISE.
- CHANGES TO THE WORK: SUBSTITUTION OF NOTED PRODUCTS OR "APPROVED EQUIVALENT" PRODUCTS WILL BE ACCEPTABLE ONLY WITH THE WRITTEN APPROVAL OF THE ARCHITECT AND STRUCTURAL ENGINEER. CHANGES TO THE CONTRACT DOCUMENTS MADE WITHOUT APPROVAL AND UNAUTHORIZED SHALL RELIEVE THE STRUCTURAL ENGINEER OF RESPONSIBILITY FROM CONSEQUENCES WHICH MAY ARISE.
- JOB SITE SAFETY: THESE DRAWINGS DO NOT INCLUDE THE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. THE GENERAL CONTRACTOR SHALL PROVIDE FOR THE JOB SITE SAFETY OF ALL PERSONNEL, WORK MATERIALS, UTILITIES, EQUIPMENT AND ADJACENT PROPERTIES IN ACCORDANCE WITH ACCEPTED CODES, REGULATIONS AND INDUSTRY PRACTICES.

### DESIGN DATA

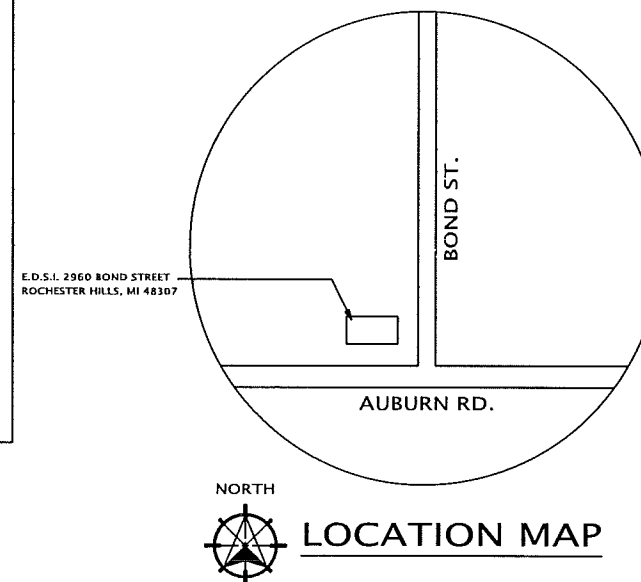
|   |   |
|---|---|
| REFERENCE CODE  | MICHIGAN BUILDING (2012), PLUMBING (2012 MPC), MECHANICAL (2012 MMC) AND ELECTRICAL (2008 NEC), BARRIER FREE, A.D.A., ICG/ANSI A117.1-2003 AND NFPA and City of Rochester Hills |
| CONSTRUCTION TYPE   | II B CONSTRUCTION TYPE.   |
| USE GROUP   | 8, F-1, S-2 LOW HAZARD STORAGE  |
| EXISTING GROSS BUILDING AREA  | 23,645 SQ. FT. (FULLY-SPRINKLED)  |
| ADDITIONAL GROSS BUILDING AREA  | 8,790 SQ. FT. (SPRINKLED)   |
| TOTAL GROSS BUILDING AREA   | 32,435 SQ. FT. (SPRINKLED)  |
| BUILDING AREA MODIFICATION CALCULATION  | BUILDING HT. ALLOWABLE F-1 (55') UNDER 55' IN HEIGHT  |
| $A_2 = \{A_1 + (A_1 \times b) + (A_1 \times l)\}$   |   |
| $I = \{E/P + 0.25\} W/30$   |   |
| $A_1 = \{15,500(15,500 \times 0.75) + (15,500 \times 2)\}$  |   |
| $A_2 = 58,125$ sq. ft. ALLOWABLE  | 58,125 sq. ft. ALLOWABLE  |
| OCCUPANT LOAD FOR ADDITION  | TOTAL OCCUPANT LOAD: 16   |
| MINIMUM NUMBER OF EXITS FOR OCCUPANT LOAD PER TABLE 1018.1  | (1) EXIT REQUIRED-- (UNDER 50 OCCUPANTS) 3 PROVIDED   |
| MAXIMUM LENGTH OF EXIT ACCESS TRAVEL PER TABLE 1015.1 WITH-OUT FIRE SUPPRESSION PROVIDED                      | 200 FEET (UNDER 30 OCCUPANTS) UNDER 200 FEET  |
| FIRE-RESISTANCE RATING REQUIREMENTS FOR FIRE BARRIER ASSEMBLIES BETWEEN FIRE AREAS                            |   |
| VERTICAL EXIT ENCLOSURES COMPLYING WITH SECTION 706.3.2.  | 1 HOUR  |
| EXIT CORRIDORS COMPLYING WITH SECTION 1016.1  | 1 HOUR  |
| INCIDENTAL USE GROUPS COMPLYING WITH TABLE 302.1.1 STORAGE ROOMS OVER 100 SQ.FT. AND ELEVATOR EQUIPMENT ROOM. | 1 HOUR  |
| FURNACE RM. WHERE THE LARGEST EQUIPMENT IS 400,000 BTU PER/HR. 302.1.1.                                       | 1 HOUR NO SPRINKLER SYSTEM  |
| SHAFT ENCLOSURES, PLUMBING, & ELECTRICAL  | 1 HOUR SPRINKLED  |

### TABLE 601 FIRE - RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

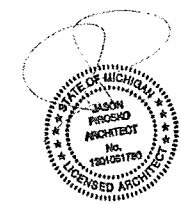
|  |         |
|--|---------|
| NON SPRINKLED  |         |
| STRUCTURAL FRAME INCLUDING COLUMNS, GIRDERS, TRUSSES     | 0 HOUR  |
| BEARING WALLS EXTERIOR                                   | 2 HOUR  |
| INTERIOR   | 0 HOUR  |
| NONBEARING WALLS AND PARTITIONS EXTERIOR                 | 0 HOURS |
| INTERIOR   | 0 HOUR  |
| FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS | 0 HOUR  |
| ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS  | 0 HOUR  |

### SHEET INDEX

|       |                                  |
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| A-0   | COVER SHEET                      |
| A-1   | FLOOR PLAN                       |
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| A-2   | ELEVATIONS                       |
| A-3   | ROOFING PLAN                     |
| A-4   | WALL SECTIONS                    |
| A-5   | WALL SECTIONS                    |
| E-1   | ELECTRICAL POWER & LIGHTING PLAN |
| M-1   | MECHANICAL & PLUMBING PLAN       |
| S-1   | FOUNDATION PLAN                  |

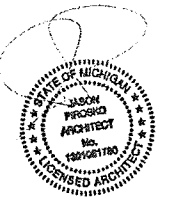


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SHEET TITLE:  
PROPOSED FLOOR PLAN

DATE: 05-09-12  
03-12-15  
04-28-15  
DRAWN BY: J.P.  
CHECKED BY: J.P.

JOB NUMBER:  
12 - 142

SHEET NUMBER:

| DOOR SCHEDULE |      |       |              |        |        |           |          |         |                      |         |             |      |          |               |      |
|---------------|------|-------|--------------|--------|--------|-----------|----------|---------|----------------------|---------|-------------|------|----------|---------------|------|
| MARK          | QTY. | GLASS | DOOR         |        |        | MAT.      | FINISH   | FRAMING |                      |         | FIRE RATING |      | HARDWARE |               |      |
|               |      |       | SIZE DETAILS |        |        |           |          | MAT.    | FINISH               | DETAILS |             |      |          | LABEL         | HOUR |
|               |      |       | WIDTH        | HEIGHT | THICK  |           |          |         |                      | HEAD    | JAMB        | SILL |          |               |      |
| 101           | 1    | N/A   | 3'-0"        | 7'-0"  | 1 3/4" | METAL     | BY OWNER | METAL   | PAINTED MATCH EXIST. | 4"      | N/A         | -    | -        | LOCK SET      |      |
| 102           | 1    | N/A   | 14'-0"       | 14'-0" | 1 3/4" | INSULATED | BY OWNER | N/A     | BY OWNER             | N/A     | N/A         | -    | -        | POWER/ REMOTE |      |
| 103           | 1    | N/A   | 14'-0"       | 14'-0" | 1 3/4" | INSULATED | BY OWNER | N/A     | BY OWNER             | N/A     | N/A         | -    | -        | POWER/ REMOTE |      |
| 104           | 1    | N/A   | 3'-0"        | 7'-0"  | 1 3/4" | METAL     | BY OWNER | METAL   | PAINTED MATCH EXIST. | 4"      | 2"          | N/A  | -        | LOCK SET      |      |

**NOTE: FIRE EXTINGUISHERS**  
PROVIDE APPROVED PORTABLE FIRE EXTINGUISHERS IN LOCATIONS VISIBLE AND AVAILABLE TO ALL OCCUPANTS AND TO SATISFY THE LOCAL FIRE DEPARTMENT.

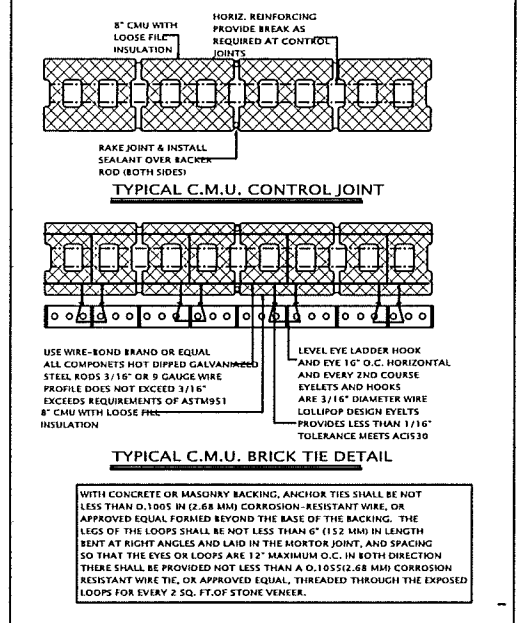
**LOCKS & LATCHES**  
ALL MEANS OF EGRESS DOORS SHALL BE READILY OPENABLE FROM THE SIDE FROM WHICH EGRESS IS TO BE MADE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.

**DOOR ACCESSIBILITY**  
ALL DOOR MUST BE A MIN. CLEAR OPENING OF 32" ALSO THERE MUST BE 18" MIN. CLEARANCE DISTANCE ON PULL SIDE OF DOOR AND 12" CLEARANCE DISTANCE ON PUSH SIDE OF DOOR.

**EGRESS DOORS**  
KEY OPERATED LOCKING DEVICES FROM EGRESS SIDE ARE PERMITTED SECT. 1008.1.8.3 AS FOLLOWS  
DOOR HARDWARE ON INTERIOR SIDE SHALL BE READILY DISTINGUISHABLE AS LOCKED.  
A READILY VISIBLE SIGN IS POSTED ON THE EGRESS SIDE OR ADJACENT TO THE DOOR STATING: "THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED"

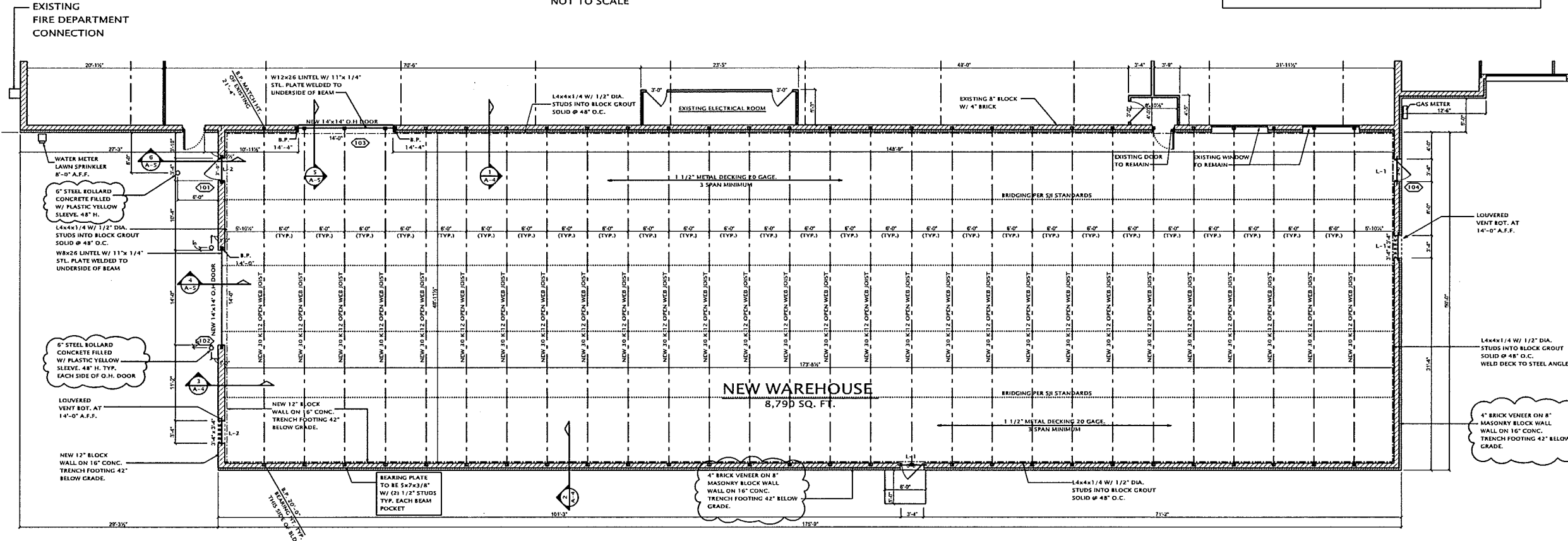
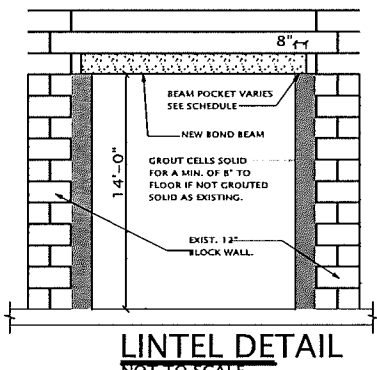
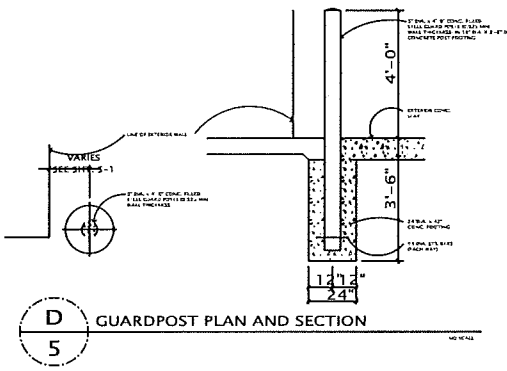
| LINTEL SCHEDULE |  |              |
|-----------------|--|--------------|
| MARK            | LINTEL DESCRIPTION   | BEAM POCKET  |
| L-1             | 8" WIDE x 8" TALL BOND BEAM W/ (2) # 5 BARS GROUT CAVITY SOLID.  | 4" EACH SIDE |
| L-2             | 12" WIDE x 8" TALL BOND BEAM W/ (2) # 5 BARS GROUT CAVITY SOLID. | 8" EACH SIDE |

**ROOF FRAMING NOTES:**  
1. ROOF DECK 1 1/2" x 20 GA. METAL DECK (3 SPANS & 4" OF RIGID INSULATION)  
2. TYPICAL BEARING PLATE 2" x 10" x 3/8" W/ (2) 1/2" DIA. x 6" STUDS INTO GROUTED CELLS.  
3. DESIGN LOADS:  
ROOF: LL= 30 PSF  
DL= 25 PSF  
4. COORDINATE RTUS WITH MECHANICAL.

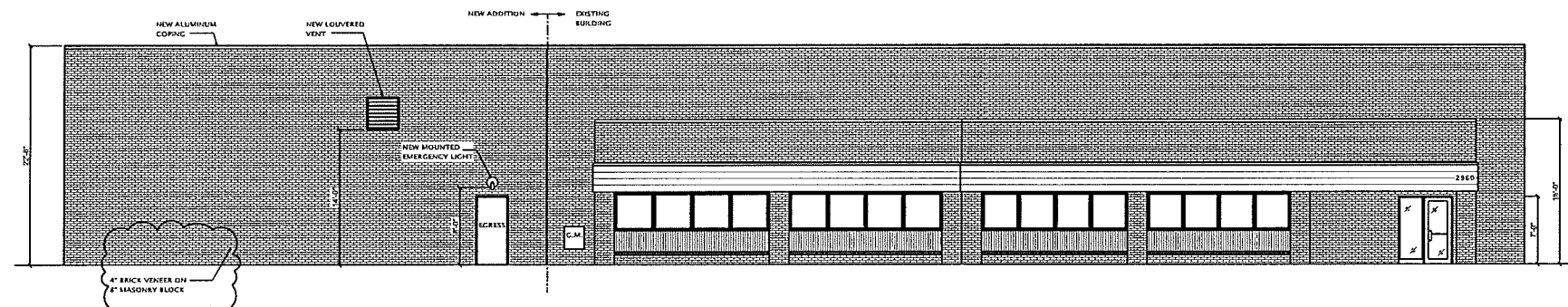


**GENERAL NOTE:**

- All work to comply with all national, state and local codes, ordinances, laws and regulations that are applicable.
- The contractor shall notify MISS DIG (1-800-482-7171) at least 72 hours prior to the start of construction.
- The contractor shall obtain all required permits and call for required inspections.
- The contractor shall field verify the sizes, locations, elevations and details of the existing conditions that affect the work and shall inform the architect of any discrepancies in dimensions, sizes, locations and conditions before proceeding with the work.
- The contractor shall provide all shoring, bracing and underpinning and all means required to protect and maintain the safety, integrity and stability of all new construction.
- The contractor shall familiarize himself (herself) with the existing conditions of the building including utilities, services, etc., and shall be fully responsible for any unauthorized disruption to the Owner's normal use of utilities, services, and the surrounding facilities.
- The contractor/owner shall familiarize himself (herself) with the construction documents and shall inform the architect of any discrepancies in dimensions, sizes and locations before proceeding with the work.
- The contractor/owner shall indemnify the architect from errors and omissions which can or may occur during the preparation of these documents.

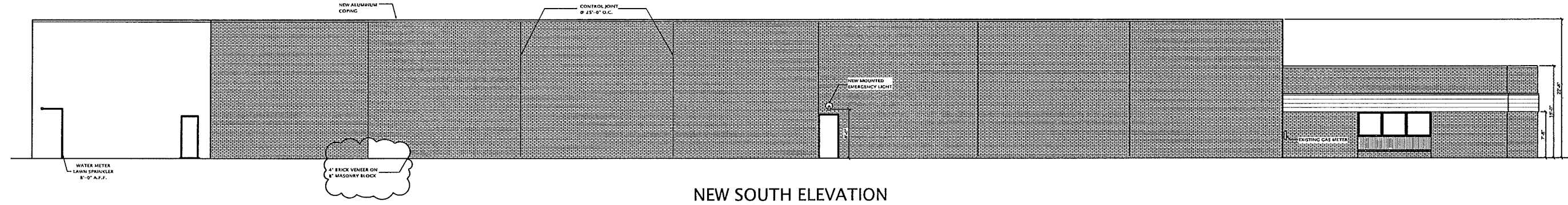






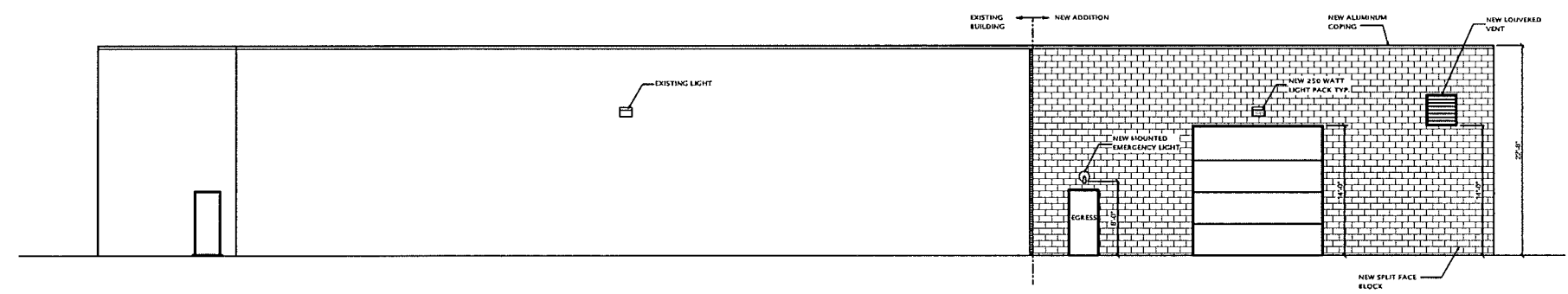
**NEW EAST ELEVATION**

SCALE: 1/8"=1'-0"



**NEW SOUTH ELEVATION**

SCALE: 1/8"=1'-0"



**NEW WEST ELEVATION**

SCALE: 1/8"=1'-0"

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BUILDER  
 BRIAN MATLES



SHEET TITLE:  
 ELEVATIONS

DATE: 05-09-12  
 03-12-15  
 04-28-15

DRAWN BY:  
 J.P.

CHECKED BY:  
 J.P.

JOB NUMBER:  
 12 - 142

SHEET NUMBER:

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2960 BOND STREET  
ROCHESTER HILLS, MI

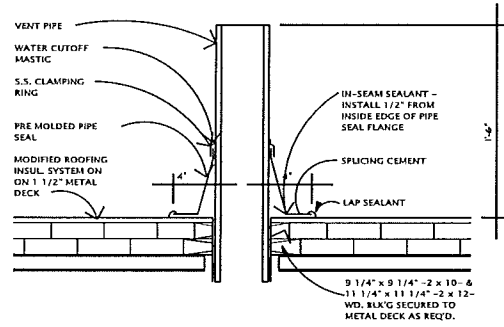
BUILDER  
BRIAN MATLES



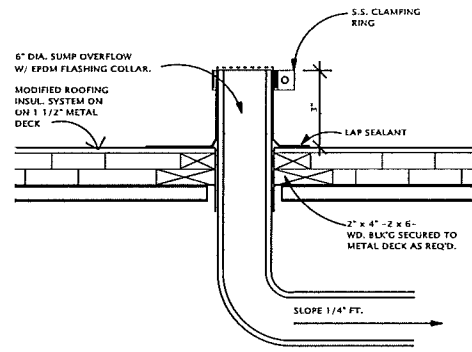
SHEET TITLE:  
ROOF PLAN

DATE: 05-09-12  
03-12-15  
04-28-15  
DRAWN BY: J.P.  
CHECKED BY: J.P.

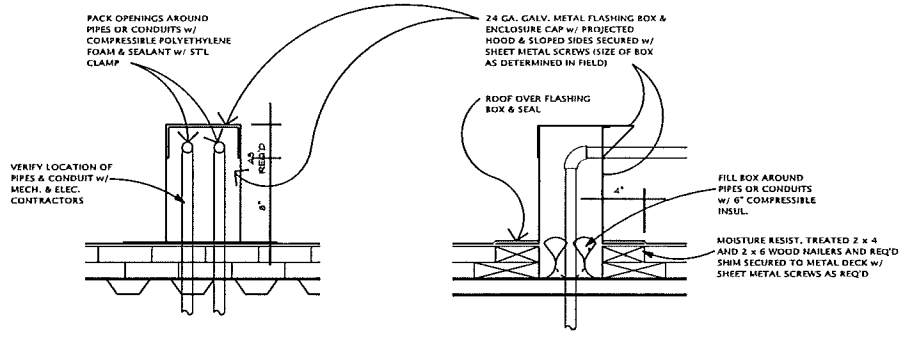
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12 - 142  
SHEET NUMBER:



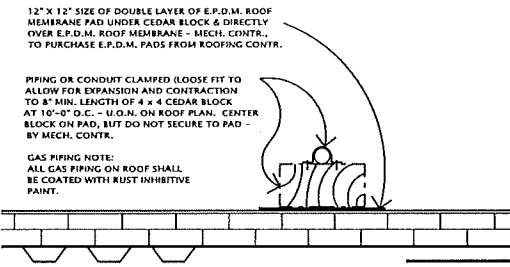
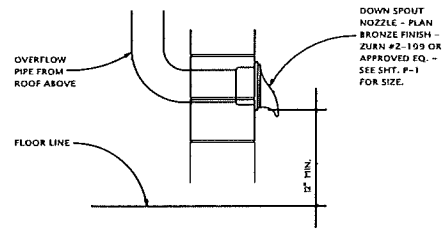
**D-1** TYP. PIPING VENT PIPE FLASHING DETAIL  
NO SCALE



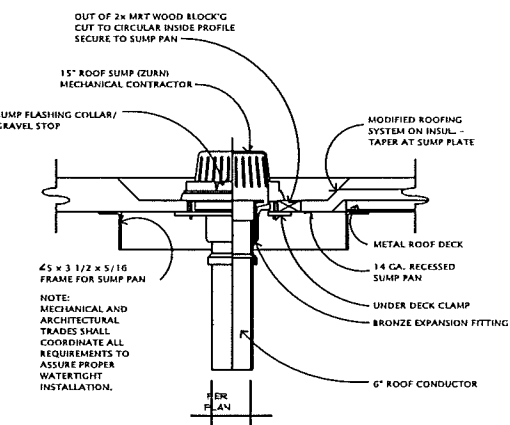
**D-2** TYP. OVERFLOW DETAIL  
NO SCALE



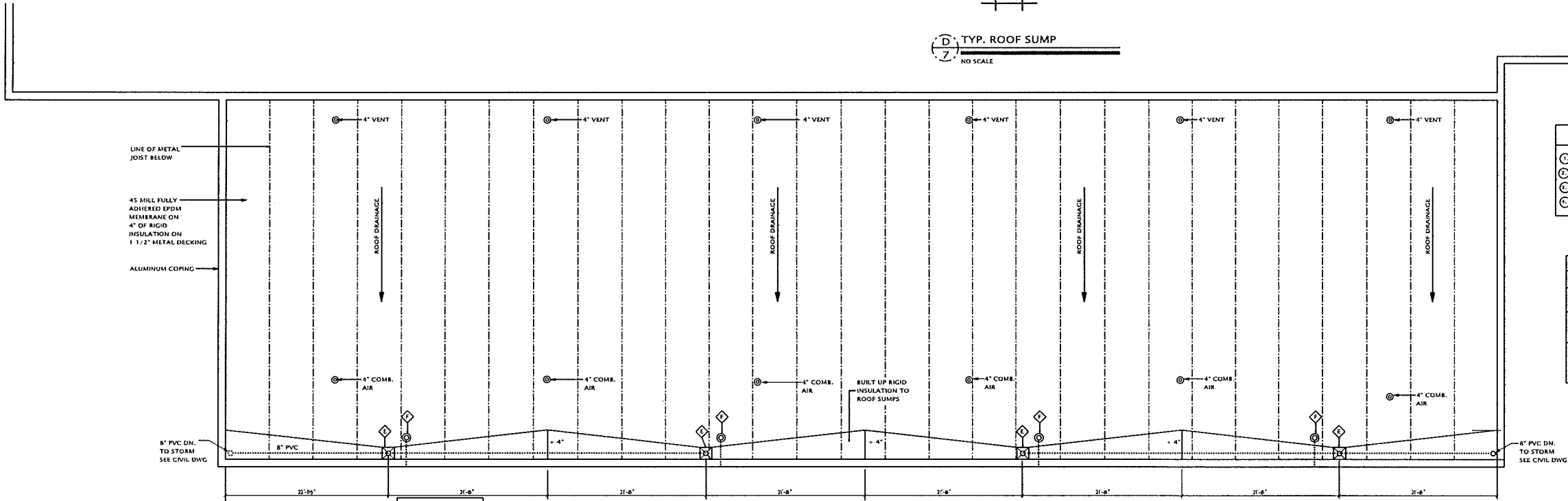
**D-3** TYP. MECH. & ELECT. FLASHING BOX DETAIL  
NO SCALE



**D-4** TYP. ROOF PIPING/ CONDUIT SUPPORT DETAIL  
NO SCALE



**D-7** TYP. ROOF SUMP  
NO SCALE



**ROOFNOTES**

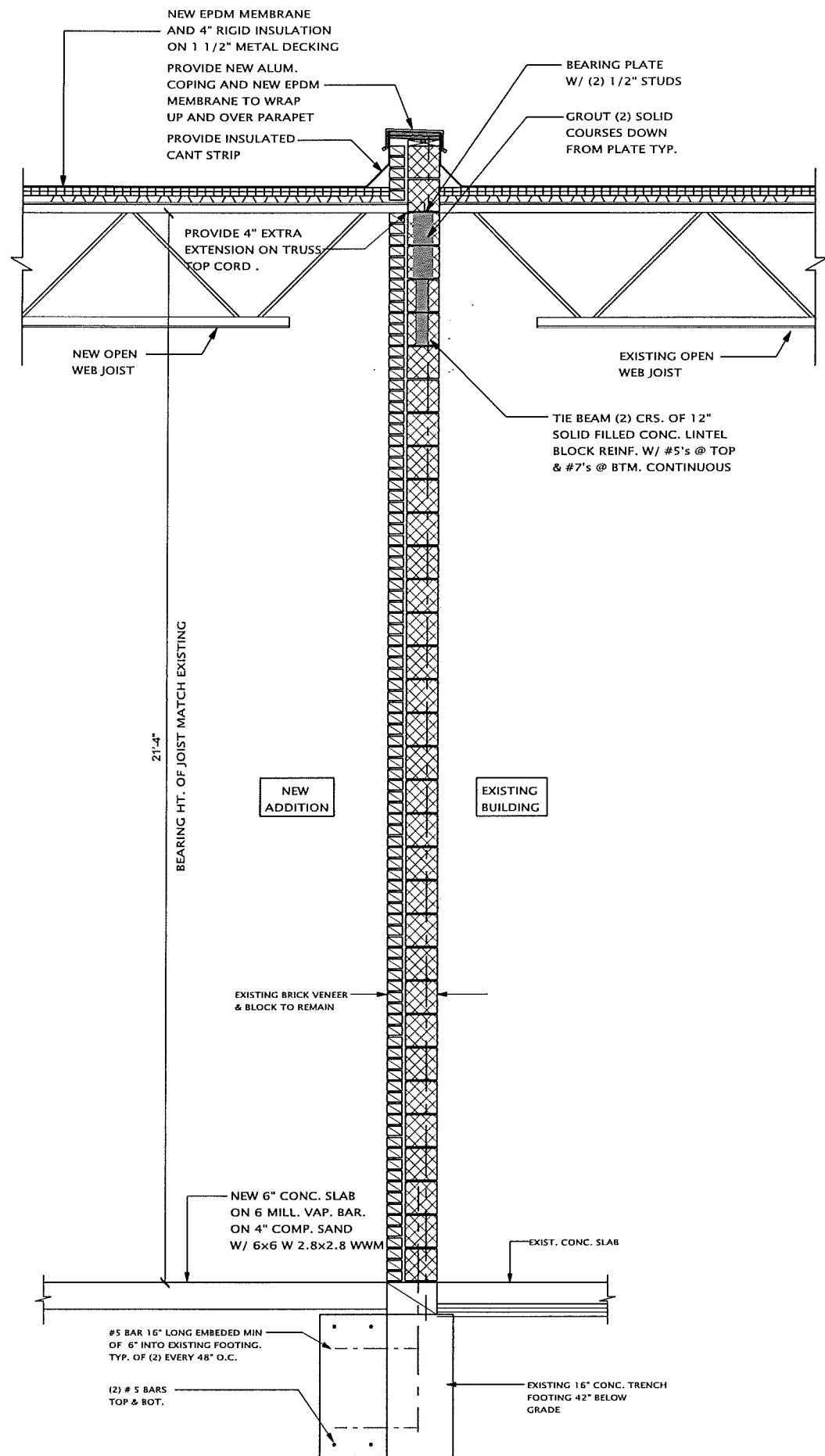
- ROOF SUMP - SEE DETAIL THIS SHEET (D-7)
- PARAPET ALUMINUM COPING WRAP EPDM MEMBRANE OVER
- ROOF OVERFLOW SEE DETAILS THIS SHEET (D-2 & D-4)
- EPDM FULLY ADHERED MEMBRANE.

**LEGEND**

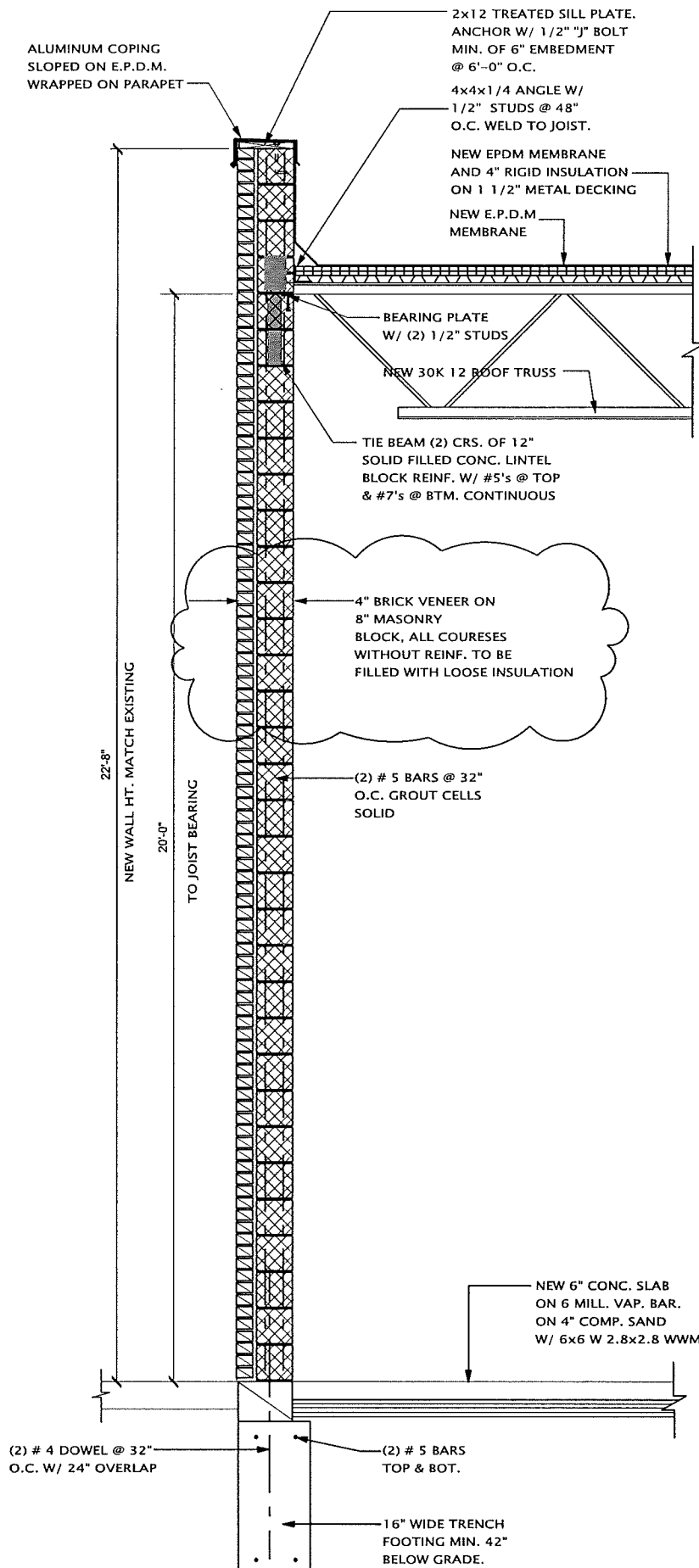
|       |             |
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ALL OVERFLOWS SHALL DRAIN @ 18\"/>

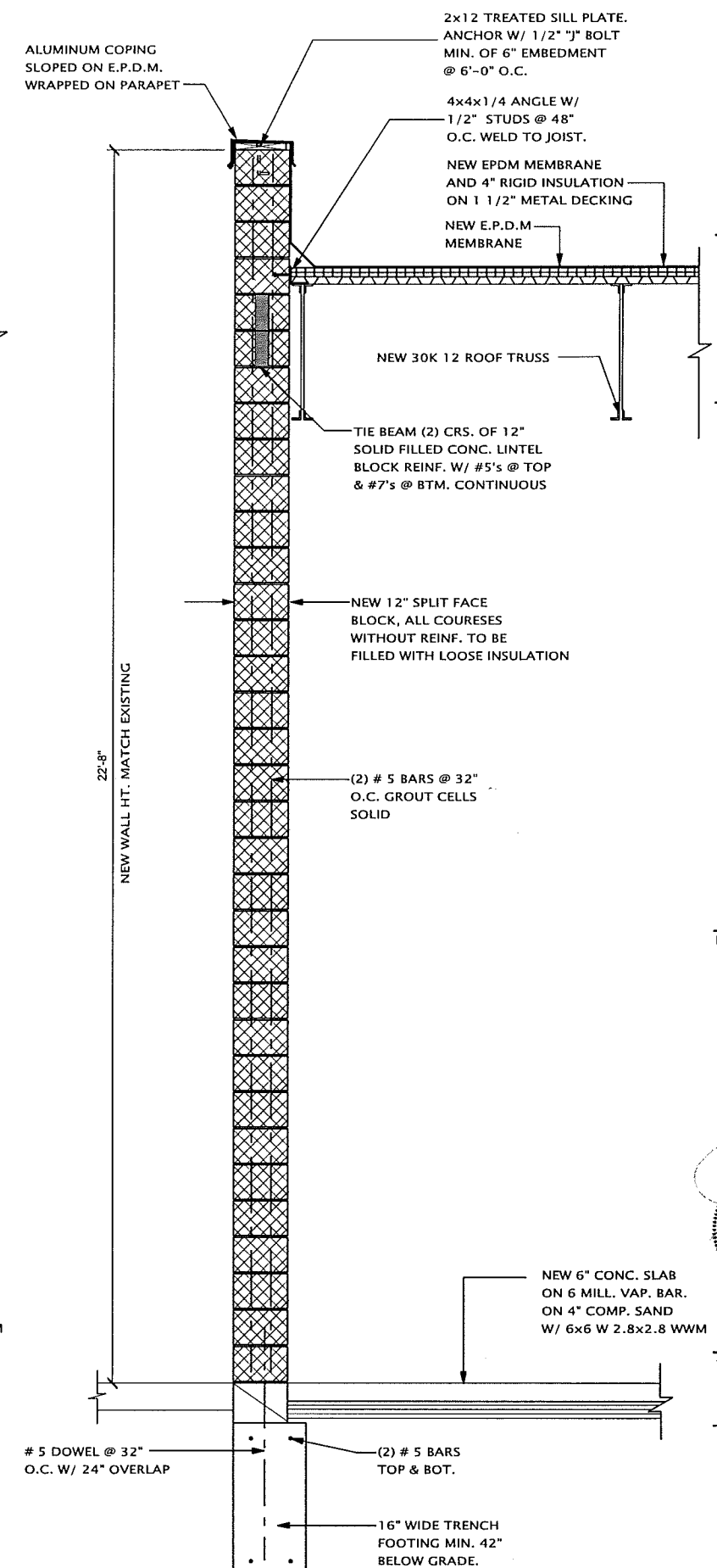
**Roof Plan**  
SCALE: 1/4\"/>



**1**  
A-4  
**Wall Section**  
SCALE: 1/2" = 1'-0"



**2**  
A-4  
**Wall Section**  
SCALE: 1/2" = 1'-0"



**3**  
A-4  
**Wall Section**  
SCALE: 1/2" = 1'-0"

**JMP**  
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45138 CAS AVE.  
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JMPDESIGNBUILD.COM

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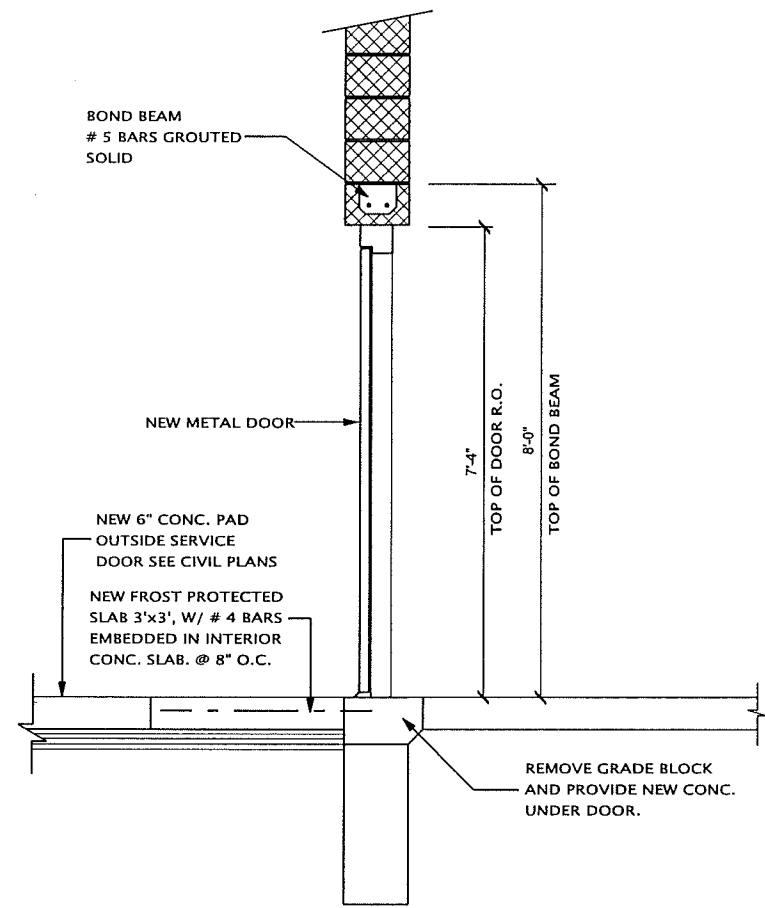
**E.D.S.I.**  
2960 BOND STREET  
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BUILDER  
BRIAN MATLES

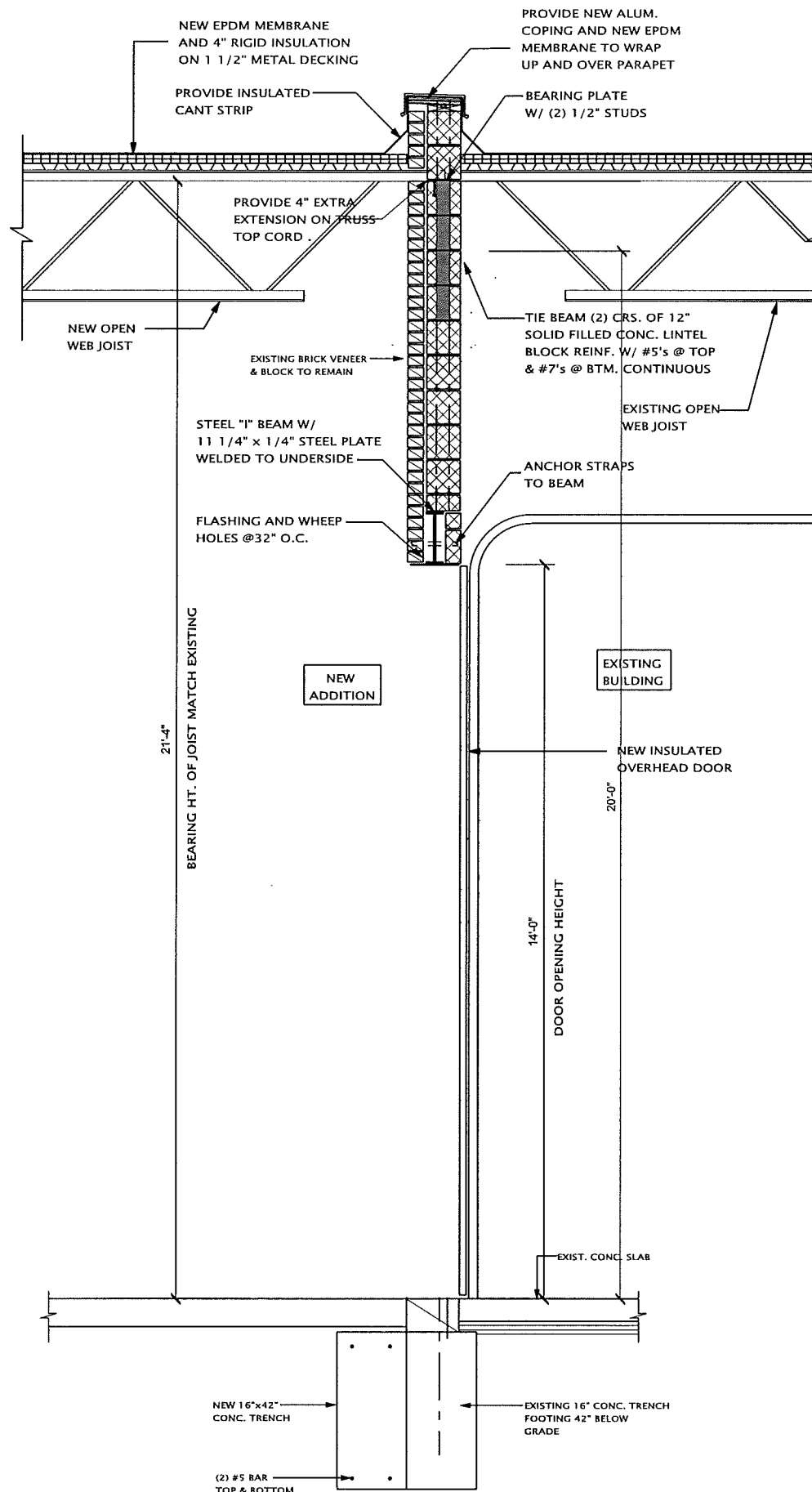


SHEET TITLE:  
WALL SECTIONS

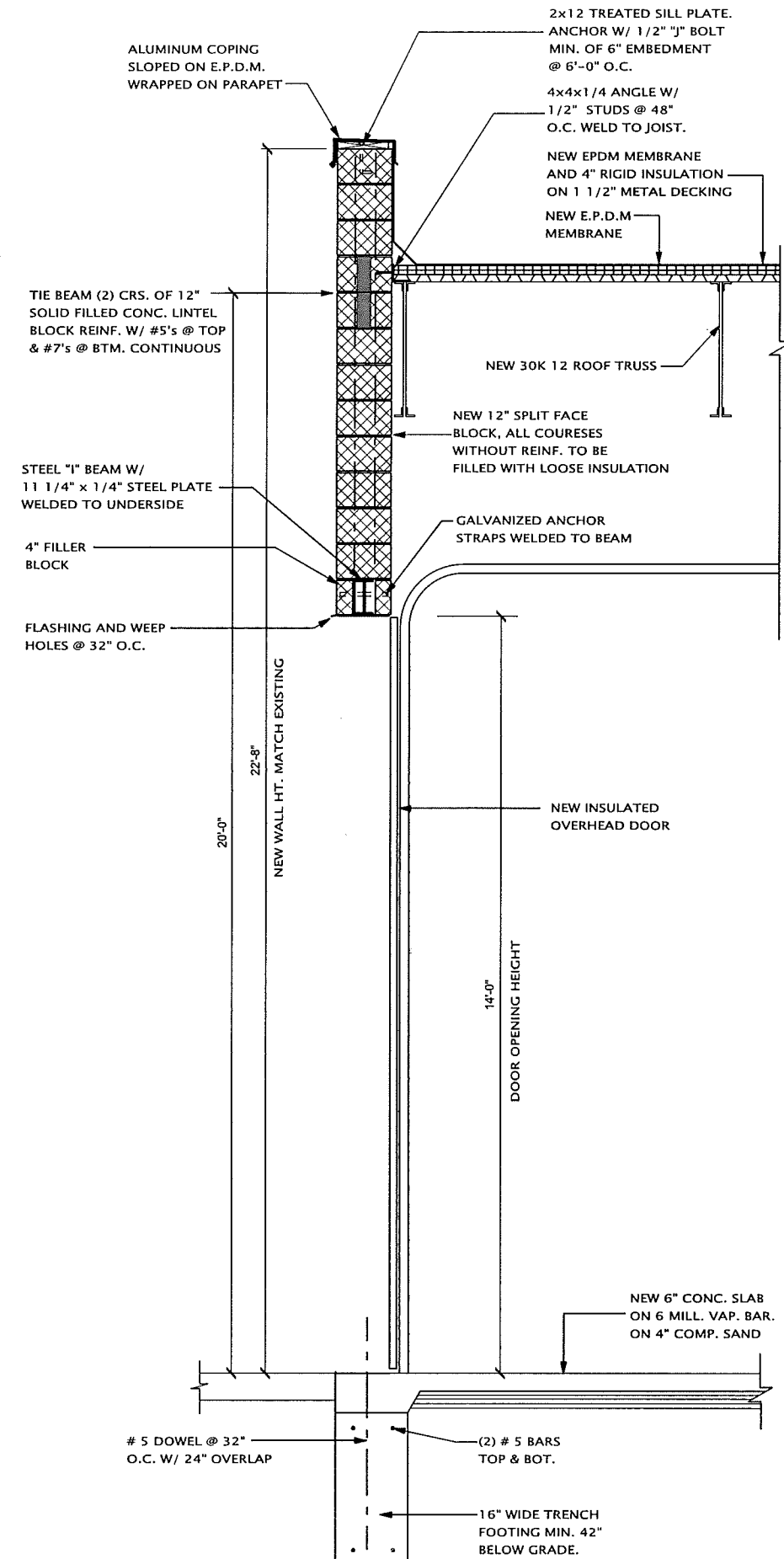
DATE: 05-09-12  
03-12-15  
04-28-15  
DRAWN BY: J.P.  
CHECKED BY: J.P.  
JOB NUMBER: 12 - 142  
SHEET NUMBER:



6  
A-5  
**Wall Section**  
SCALE: 1/2" = 1'-0"



5  
A-5  
**Wall Section**  
SCALE: 1/2" = 1'-0"



4  
A-5  
**Wall Section**  
SCALE: 1/2" = 1'-0"



**ELECTRICAL NOTES**

- ALL ELECTRICAL WORK SHALL COMPLY WITH THE LATEST EDITION OF N.E.C. LOCAL AND STATE CODES, ORDINANCES, AND REGULATIONS, INCLUDING THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
- INCLUDE ALL ELECTRICAL WORK REQUIRED FOR A COMPLETE NEW INSTALLATION AS INDICATED ON THE PLANS.
- ALL EQUIPMENT SHALL BE NEW AND SHALL CONFORM IN ALL RESPECTS TO THE LATEST APPROVED STANDARDS OF THE I.E.E.E., A.N.S.I., AND BEAR THE "UL" LABEL OR LISTING.
- ALL ELECTRICAL SYSTEMS AND EQUIPMENT SHALL CONFORM TO ALL NATIONAL, STATE AND LOCAL BUILDING CODES. THE ELECTRICAL CONTRACTOR SHALL OBTAIN ALL PERMITS, PAY ALL FEES, INCLUDING ALL COSTS INCURRED BY THE ELECTRIC UTILITY COMPANY, AND ARRANGE FOR ALL INSPECTIONS FOR HIS WORK. AT THE COMPLETION OF ELECTRICAL WORK, THE ELECTRICAL CONTRACTOR SHALL FURNISH THE OWNER WITH ALL CERTIFICATES OF FINAL INSPECTION AND APPROVALS.
- ALL CONDUCTORS SHALL BE COPPER, MINIMUM SIZE #12 AWG, INSTALLED IN CONDUIT, MINIMUM SIZE 1/2", AND SHALL BE TYPE "THIN" UNLESS OTHERWISE NOTED ON THE PLANS. ALL FEEDERS AND SECONDARY SERVICE CONDUCTORS SHALL BE COPPER WITH 600 VOLT INSULATION. FEEDERS SHALL BE THIN OR XHHW AND SECONDARY SERVICE CONDUCTORS SHALL BE XHHW, INSTALLED IN CONDUIT, UNLESS OTHERWISE NOTED ON PLANS.
- ALL CONDUITS SHALL BE CONCEALED, UNLESS OTHERWISE NOTED. EXPOSING OF ANY CONDUIT SHALL HAVE APPROVAL OF THE OWNER.
- FUSES SHALL BE "UL" LISTED, DUAL-ELEMENT, AS MANUFACTURED BY RUSSMAN CO. OR APPROVED EQUAL (200,000 AIC). ALL FUSES INSTALLED IN MAIN DISTRIBUTION PANELS SHALL BE "CURRENT LIMITING" TYPE, UNLESS NOTED OTHERWISE ON THE PLANS.
- ALL DUPLEX RECEPTACLES SHALL BE SPECIFICATION GRADE 125 VOLT, 15 AMP, GROUNDED TYPE, EQUAL TO HUBBELL #5252 SERIES, P.15 OR BRYANT. COLOR TO BE AS SELECTED BY THE OWNER.
- ALL GROUND FAULT RECEPTACLES SHALL BE SPECIFICATION GRADE 120 VOLT, 15 AMP, U.L. LISTED UNDER 498 RECEPTACLE REQUIREMENTS AND 941 CLASS A REQUIREMENTS, SHALL CONFORM TO NEC REQUIREMENTS, AND EQUAL TO HUBBELL SERIES #5260, P.15, OR BRYANT. COLOR TO BE AS SELECTED BY THE OWNER.
- SWITCHES SHALL BE 20 AMP, 120/222 VOLT, SPECIFICATION GRADE SINGLE, DOUBLE, ETC., AS INDICATED, EQUAL TO HUBBELL #1120 SERIES, P.15, OR BRYANT. COLOR TO BE AS SELECTED BY THE OWNER.
- ALL STEEL WITH BAKED ENAMEL FINISH, REF. #10, 12 OR 14 SERIES, OR AS SELECTED BY THE OWNER.
- ALL CONDUIT SHALL BE ELECTRICAL METALLIC TUBING (E.M.T.); MINIMUM SIZE 1/2", UNLESS NOTED OTHERWISE ON THE PLANS.
- PANELBOARDS SHALL BE 120/140 VOLT, 1 PHASE, 3 WIRE, 20" WIDE WITH COPPER BUS AND BOLT-ON BREAKERS RATED 10,000 A.I.C. SIMILAR TO SQUARE D, TYPE NQ98, I.T.E. OR G.E.
- ALL PANELBOARDS SHALL HAVE A TYPEWRITTEN DIRECTOR IDENTIFYING EACH CIRCUIT THAT EACH CIRCUIT BREAKER SERVES.
- LIGHTING FIXTURES SHALL BE INSTALLED COMPLETELY WIRE AND EQUIPPED WITH LAMPS, BALLASTS, STARTERS, LENSES, ETC.
- FLUORESCENT FIXTURES, UNLESS SPECIFIED OTHERWISE, SHALL BE SUITABLE FOR 120 OR 277 VOLT, SINGLE-PHASE, A/C, 60 HERTZ SERVICE AND SHALL BE EQUIPPED WITH 40 WATT, T-12 RAPID START LAMPS.
- EMERGENCY LIGHTING UNITS:
  - FURNISH AND INSTALL EMERGENCY LIGHTING IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF N.E.C., VERIFY SPACING AND LOCATION REQUIREMENTS WITH THE EMERGENCY LIGHTING UNIT MANUFACTURER, COORDINATE ALL PATHS OF EGRESS IN THE BUILDING WITH THE ARCHITECTURAL DRAWINGS. REFER TO THE LIGHTING FIXTURE SCHEDULE, INDICATED ON THE ELECTRICAL DRAWINGS FOR THE TYPE AND DESCRIPTION OF ALL EMERGENCY LIGHTING FIXTURES TO BE USED ON THIS PROJECT.
  - FURNISH AND INSTALL THE NUMBER OF EMERGENCY LIGHTING UNITS INDICATED ON THE PLANS AS "BASE BID" FOR THIS PROJECT.
  - QUOTE A "UNIT PRICE" TO FURNISH ADDITIONAL EMERGENCY LIGHTING UNITS IN EXCESS OF THE "BASE BID" REQUIREMENTS.
- THE ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE BEFORE HE SUBMITS HIS BID TO FAMILIARIZE HIMSELF WITH ACTUAL JOB CONDITIONS AND TO CHECK FOR ANY INTERFERENCE BETWEEN HIS WORK AND THAT OF OTHER TRADES, AND/OR ANY APPARENT VIOLATIONS OF LOCAL OR STATE CODES, LAWS, ORDINANCES, AND REGULATIONS. IF ANY INTERFERENCE OR VIOLATIONS ARE APPARENT, THE CONTRACTOR SHALL NOTIFY THE OWNER BEFORE ENTERING INTO CONTRACT. FAILURE TO PROVIDE THE OWNER WITH THE COMPLETE AFORESAID NOTIFICATION WILL RESULT IN THE CONTRACTOR BEING HELD RESPONSIBLE TO ALL WORK TO MEET THE DESIGN INTENT OF THE CONTRACT DRAWINGS WITH NO ADDITIONAL EXPENSE ("EXTRAS") BEING INCURRED BY THE OWNER.
- ALL CABINETS, MOTOR FRAMES, STARTERS, CONDUIT SYSTEMS, PANELS, ETC., SHALL BE ADEQUATELY GROUNDED IN ACCORDANCE WITH THE N.E.C. AND ALL LOCAL CODES. MAIN SERVICE EQUIPMENT SHALL BE GROUNDED WITH THE TYPE AND SIZE OF GROUNDING CONDUCTOR INDICATED IN NEC SECTIONS 250-23(A); 250-81; 250-83; & TABLE 250-94.
- UNLESS OTHERWISE NOTED ON THE PLANS, ALL DISCONNECT SWITCHES SHALL BE 250 VOLT OR 600 VOLT RATED, STANDARD DUTY TYPE, NEMA 1, FOR INDOOR USE AND NEMA 3B FOR OUTDOOR USE, G.E., WESTINGHOUSE, OR SQUARE D. ALL DISCONNECT SWITCHES SERVING MOTORS SHALL BE HORSEPOWER RATED.
- SINGLE PHASE MOTOR STARTERS SHALL HAVE MANUAL TOGGLE SWITCH WITH THERMAL OVERLOADS, SURFACE OR FLUSH MOUNTED AS REQUIRED, ALLENBRADLEY NO. 712.
- THE ELECTRICAL CONTRACTOR SHALL SUBMIT EQUIPMENT SHOP DRAWINGS TO THE OWNER FOR APPROVAL BEFORE INSTALLATION OF ANY OF THE FOLLOWING ELECTRICAL EQUIPMENT:
  - LIGHT FIXTURES
  - LIGHTING AND/OR RECEPTACLE PANELBOARDS
  - STARTERS AND/OR DISCONNECT SWITCHES
 APPROVAL OF SHOP DRAWINGS IS INTENDED TO BE FOR GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS ONLY. ANY EQUIPMENT THAT IS INSTALLED THAT WILL INVOLVE THE WORK OF OTHER TRADES SHALL BE COORDINATED WITH THOSE TRADES. REFER TO OTHER TRADE DRAWINGS FOR FAMILIARIZATION.
- THE ELECTRICAL CONTRACTOR SHALL GUARANTEE ALL WORK INSTALLED UNDER HIS CONTRACT TO BE FREE FROM DEFECTIVE WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER THE ACCEPTANCE OF THE BUILDING BY THE OWNER, AND SHOULD DEFECTS OCCUR WITHIN THIS PERIOD, REPAIR AND/OR REPLACE DEFECTIVE ITEMS, AT NO EXPENSE TO THE OWNER.
- THE ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATIONS OF HIS EQUIPMENT AND WORK WITH OTHER BUILDING TRADES TO AVOID ANY INTERFERENCE BETWEEN HIS WORK AND THE WORK OF OTHER BUILDING TRADES.
- ANY CUTTING AND/OR PATCHING, THAT MAY BE REQUIRED FOR THE INSTALLATION OF THE ELECTRICAL SYSTEM, SHALL BE DONE AND/OR REPAIRED BY THE ELECTRICAL CONTRACTOR. NO CUTTING OF THE BUILDING STRUCTURAL SYSTEM SHALL BE DONE WITHOUT THE WRITTEN APPROVAL OF THE OWNER BEING PREVIOUSLY OBTAINED.

**NOTE: EXIT AND EMERGENCY LIGHTING**

ALL EXITS AND EXIT ACCESS DOORS SHALL BE MARKED BY AN APPROVED EXIT SIGN READILY VISIBLE FROM ANY DIRECTION OF EGRESS TRAVEL. DIRECTIONAL EXIT SIGNS SHALL BE REQUIRED WHERE THE PATH OF EGRESS IS NOT IMMEDIATELY VISIBLE TO THE OCCUPANTS. (M.C. & I.F.C. CHAPTER 10, MEANS OF EGRESS)

EMERGENCY LIGHTING SHALL BE PROVIDED FOR THE MEANS OF EGRESS IN ACCORDANCE WITH THE MICHIGAN BUILDING CODE & THE INTERNATIONAL FIRE CODE CHAPTER 10, MEANS OF EGRESS.

**LIGHTING NOTES**

- VERIFY ALL PHONE OUTLETS, CABLE OUTLETS, ELECTRICAL OUTLETS AND SWITCH LOCATIONS W/ OWNER
- STORAGE BATTERIES SHALL BE STORED ON-SITE.
- EMERGENCY LIGHTING SHALL HAVE MIN. OF 1 FOOT CANDLE FOR EGRESS AT FLOOR LEVEL (1 LUX)
- ALL ELECTRICAL OUTLETS, SWITCHES AND OTHER CONTROLS SHALL BE ACCESSIBLE.
- LIGHTING SHALL PROVIDE A MIN. OF 10 FOOT CANDLES FROM 30" A.F.F.

| FIXTURE TYPE | DESCRIPTION   | MOUNTING |
|--------------|---|----------|
| L1           | NEULLED EXIT SIGN, 200V/110V, IMPACT-RESISTANT POLYCARBONATE HOUSING, WALL/CILING MOUNTED, SINGLE/DOUBLE FACE, RED LETTERS WITH A RETRGL. FACE, SHARP-FIT FACELATE UNIVERSAL DIRECTION ARROWS, SEALED MAINTENANCE-FREE NiCAD BATTERY, TEST SWITCH/CHARGE CREDIT AND BLOW-OUT PROTECTION, CHARGER, LOW VOLTAGE DISCONNECT, 1/2" YEAR WARRANTY, LITHONIA CAT. NO. L101 8 1/2" (300/300) 12V OR EQUAL. | SURFACE  |
| L2           | COMBINATION EXIT/EMERGENCY LIGHT WITH A WEATHER PROOF REMOTE HEAD, CAT. NO. LITHONIA LHM2 8 1/2" (300/300) 12V OR EQUAL, REL. 100/400-308 (REMOTE HEAD) 4 1/2" A.F.F.   | SURFACE  |
| L3           | NEW EMERGENCY LIGHTING UNIT, HIGH IMPACT POLYCARBONATE HOUSING, WITH 2-6 WATT HALOGEN LAMPS, 6 VOLT OUTPUT, 300/300 VOLT, MAINTENANCE FREE LEAD-CALCIUM BATTERIES, 90 MINUTE OPERATION, CAT. NO. LITHONIA EL10 OR EQUAL, MOUNT 4 1/2" A.F.F.  | SURFACE  |
| L4           | NEW EMERGENCY LIGHTING UNIT, HIGH IMPACT POLYCARBONATE HOUSING, WITH 2-6 WATT HALOGEN LAMPS, 6 VOLT OUTPUT, 300/300 VOLT, MAINTENANCE FREE LEAD-CALCIUM BATTERIES, 90 MINUTE OPERATION, CAT. NO. LITHONIA EL10 OR EQUAL, MOUNT 4 1/2" A.F.F.  | RECESSED |
| L5           | 2X4' FLUORESCENT HANGING FIXTURE, 100V/208V, 4-32WATT T-8 U LAMP'S, CAT. NO. LITHONIA, FOSB 6 3/2 3200 MVOLT 2/3 GEBOLE MOUNTING HEIGHT 11'-0"  | SURFACE  |
| L6           | EXIT OR WALL PACKS (LITHONIA) TUNIC 250H TB 602A LPI 100/208V, DARK BRONZE 250W   | SURFACE  |

ALL FLUORESCENT LAMPS SHALL BE 4100K

**LIGHTING NOTES**

- VERIFY ALL PHONE OUTLETS, CABLE OUTLETS, ELECTRICAL OUTLETS AND SWITCH LOCATIONS W/ OWNER
- EMERGENCY LIGHTING SHALL HAVE MIN. OF 1 FOOT CANDLE FOR EGRESS AT FLOOR LEVEL (1 LUX)
- ALL ELECTRICAL OUTLETS, SWITCHES AND OTHER CONTROLS SHALL BE ACCESSIBLE.
- LIGHTING SHALL PROVIDE A MIN. OF 10 FOOT CANDLES FROM 30" A.F.F.
- ALL EMERGENCY IN-SIGHT LIGHT/EXIT/ESU FIXTURES SHALL BE CONNECTED TO PANELS AS INDICATED IN OPEN AREA OR TO THE HOT SIDE OF THE LIGHT SWITCH OF THE AREA THEY SERVE.
- REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF ALL LIGHT FIXTURES.

**CEILING FINISHES**

| MARK | DESCRIPTION             |
|------|-------------------------|
| C-1  | METAL DECKING NO FINISH |

**ELECTRICAL SYMBOL LIST**

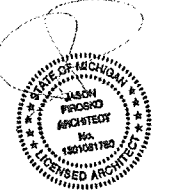
| SYMBOL   | DESCRIPTION  |
|----------|--|
| [Symbol] | RECESSED FLUORESCENT FIXTURE   |
| [Symbol] | SURFACE INCANDESCENT, HID OR FLUORESCENT FIXTURE   |
| [Symbol] | FIXTURE ON NIGHT LIGHT/EMERGENCY CIRCUIT   |
| [Symbol] | EXIT LIGHT - CEILING MOUNTED   |
| [Symbol] | EXIT LIGHT - WALL MOUNTED  |
| [Symbol] | EXIT LIGHT - WALL MOUNTED WITH A REMOTE W/P HEAD   |
| [Symbol] | EMERGENCY LIGHT - WALL, CEILING  |
| [Symbol] | COMBINATION EMERGENCY/EXIT LIGHT - WALL MOUNTED WITH A REMOTE W/P HEAD/POINT 12" BELOW CEILING |
| [Symbol] | SINGLE POLE SWITCH   |
| [Symbol] | THREE WAY SWITCH   |
| [Symbol] | FOUR WAY SWITCH  |
| [Symbol] | DIPPER SWITCH  |
| [Symbol] | DUPLEX RECEPTACLE OUTLET (G - INDICATES 300FT/CEILING MTD)                                     |
| [Symbol] | QUAD RECEPTACLE OUTLET   |
| [Symbol] | SINGLE RECEPTACLE OUTLET   |
| [Symbol] | TELEDATA (COMPUTER) OUTLET   |
| [Symbol] | MANUAL STARTER - THERMAL TYPE MOTOR PROTECTION SWITCH  |
| [Symbol] | THREE PHASE MOTOR  |
| [Symbol] | SINGLE PHASE MOTOR   |
| [Symbol] | LIGHTING RECEPTACLE PANEL  |
| [Symbol] | DISTRIBUTION PANEL   |
| [Symbol] | JUNCTION BOX (INDICATES ABOVE CEILING)   |
| [Symbol] | LIGHTING CONTACTOR   |
| [Symbol] | TRANSFORMER  |
| [Symbol] | DISCONNECT SWITCH - FUSED  |
| [Symbol] | DISCONNECT SWITCH - NON FUSED  |
| [Symbol] | COMBINATION STARTER/DISCONNECT SWITCH - FUSED  |
| [Symbol] | FIRE ALARM AUDIO/VISUAL HORN   |
| [Symbol] | FIRE ALARM VISUAL  |
| [Symbol] | FIRE ALARM BELL RATCH  |
| [Symbol] | FIRE ALARM CONTROL PANEL   |
| [Symbol] | G.F.I.   |
| [Symbol] | GROUND FAULT INTERRUPTER   |
| [Symbol] | LEATHER PROOF  |
| [Symbol] | ABOVE FINISHED FLOOR   |
| [Symbol] | NIGHT LIGHT / EMERGENCY LIGHT  |
| [Symbol] | ELECTRICAL WATER COOLER  |
| [Symbol] | ELECTRICAL CONTRACTOR  |
| [Symbol] | DETROIT EDISON COMPANY   |
| [Symbol] | EXISTING TO REMAIN   |
| [Symbol] | RELOCATED ELECTRICAL EQUIPMENT/DEVICE  |
| [Symbol] | UNLESS NOTED OTHERWISE   |

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BUILDER  
BRIAN MATLES



SHEET TITLE:  
Electrical & Lighting Plan

DATE: 05-09-12  
03-12-15  
04-28-15

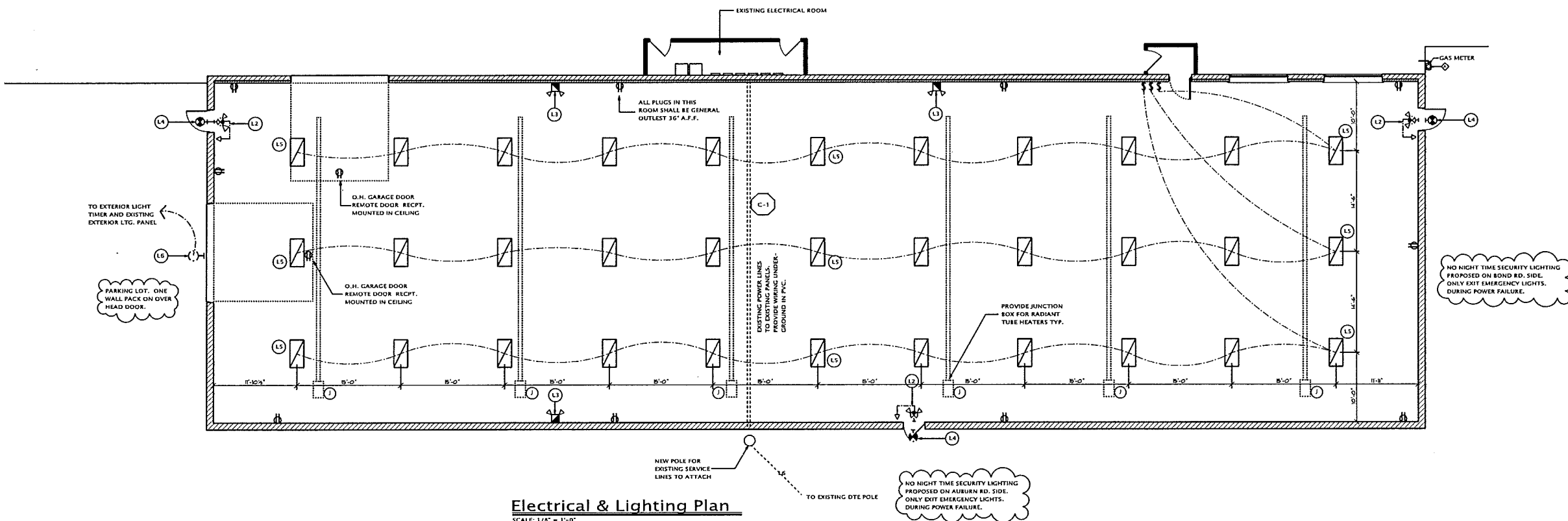
DRAWN BY:  
J.P.

CHECKED BY:  
J.P.

JOB NUMBER:  
12 - 142

SHEET NUMBER:

| MECHANICAL EQUIPMENT |            |              |        |         |           |         |                      |             |              |
|----------------------|------------|--------------|--------|---------|-----------|---------|----------------------|-------------|--------------|
| MANUFACTURE          | MODEL      | BTU          | LENGTH | WEIGHT  | MOUNT HT. | GAS SP. | COMBUSTION & VENT    | ELECT POWER | AMPS         |
| RE-VERBER-RAY        | HL3-40-175 | 175,000 BTUS | 40'-0" | 100 LBS | 18'-0"    | 7/8"    | 4" SIDE WALL OR ROOF | 120V 1PH    | 4.4 STARTING |



**Electrical & Lighting Plan**  
SCALE: 1/8" = 1'-0"



# PLUMBING NOTES

**GENERAL REQUIREMENTS:**  
READ AND BE BOUND BY THE ARCHITECTURAL SPECIFICATIONS, THESE SPECIFICATIONS, ALL OTHER DOCUMENTS ATTACHED HERETO, AND ADDENDA ISSUED AND THE ACCOMPANYING PLANS ARE INTENDED TO PROVIDE FOR THE COMPLETE FURNISHING AND INSTALLING OF THE ENTIRE MECHANICAL SYSTEM.

THE WORK SHALL BE DONE IN ACCORDANCE WITH BEST PRACTICE SO AS TO CONTRIBUTE TO EFFICIENCY OF OPERATION AND MINIMAL MAINTENANCE AND SHALL BE INSTALLED WITH PROPER ACCESSIBILITY. THE MATERIALS AND EQUIPMENT, INCLUDING ALL NECESSARY ACCESSORIES, SHALL BE PUT INTO PROPER ADJUSTMENTS SO THAT THE COMPONENT PARTS FUNCTION TOGETHER AS A WORKABLE SYSTEM. THE MECHANICAL AND OPERATIONS AS INDICATED EITHER ON THE DRAWINGS OR CONTAINED HEREIN OR AS MAY BE REASONABLY IMPLIED BY EITHER TO ACCOMPLISH COMPLETE MECHANICAL SYSTEMS.

MECHANICAL CONTRACTOR SHALL FURNISH LABOR AND MATERIAL PERFORMANCE BOND.

**GOVERNING AGENCIES:**  
THE CONTRACTOR SHALL BE HELD TO BE FULLY INFORMED OF ALL LAWS, ORDINANCES AND CODES, AND SHALL IN THE PERFORMANCE OF THE CONTRACT, COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL AFORESAID CODES REGULATIONS. ANY DEVIATION FROM THE PLANS OR CODE REQUIREMENTS SHALL BE MADE BY THE CONTRACTOR WITHOUT EXTRA COST TO THE OWNER.

**DAMAGE TO OTHER WORK:**  
REPAIR AND PAY FOR ALL DAMAGE DONE TO THE EXISTING AND NEW WORK BY MECHANICAL TRADES WORKMEN.

**CUTTING AND PATCHING:**  
ALL CUTTING AND PATCHING REQUIRED FOR INSTALLATION SHALL BE BY MECHANICAL TRADES AND INCLUDED IN EXPENSE TO AFOREMENTIONED.

**EXAMINATION OF SITE:**  
CONTRACTOR SHALL EXAMINE EXISTING SITE AND BE THOROUGHLY AWARE OF EXISTING CONDITIONS TO BE WORKED UNDER AND WORK INVOLVED. ADVISE ENGINEER OF ANY CONTINGENCIES BEFORE SUBMITTING BIDS.

**CLEANING:**  
PREMISES SHALL BE CLEANED UPON COMPLETION OF MECHANICAL.

**WORK:**  
COORDINATE WORK WITH OTHER TRADES TO AVOID INTERFERENCE AND PRESENT A NEAT APPEARANCE. INTERFERENCE WILL NOT BE CONSIDERED AS EXTRA WORK.

**INTERFERENCE:**  
ALL MAJOR DEVIATIONS REQUIRED DUE TO INTERFERENCE WITH THE WORK OF OTHERS SHALL BE MADE BY MECHANICAL CONTRACTOR AT NO ADDITIONAL COST. VERIFY LOCATIONS OF EXISTING PIPING, DUCTS AND BUILDING STRUCTURAL BEAMS IN THE PROJECT AREA FOR CONNECTIONS TO THE SAME AND TO AVOID POSSIBLE INTERFERENCE. OF ALL SHOP DRAWING ON ALL EQUIPMENT FOR APPROVAL.

**DRAWING:**  
THE DESIGN DRAWING SHOW THE GENERAL ARRANGEMENT AND EXTENT OF THE WORK. THE DRAWING ARE DIAGRAMMATIC AND MAY NOT BE DRAWN TO SCALE IN CERTAIN AREAS FOR PURPOSES OF CLARITY AND LEGIBILITY. IT IS INTENDED THAT ALL APPARATUS BE LOCATED SYMMETRICAL WITH ARCHITECTURAL ELEMENTS AND BE INSTALLED TO AVOID OBSTRUCTIONS AND PRESSURE HEADROOM. THE CONTRACTOR SHALL REVIEW THE PLANS OF OTHER TRADES WITH HIS OWN WORK TO AVOID CONFLICTS AND INTERFERENCES. HE SHALL MAKE USE OF ALL SOURCES OF DATA, INCLUDING SHOP DRAWINGS AND DRAWINGS OF EQUIPMENT FURNISHED BY OTHERS.

**ACCESS TO EQUIPMENT:**  
ALL CONTROL DEVICES, EQUIPMENT, DAMPERS, ETC. SHALL BE SO LOCATED SO AS TO PROVIDE FOR EACH ACCESS OF OPERATION, REPAIRS AND MAINTENANCE. IF CONCEALED, ACCESS PANELS OR EXTENDED OPERATORS SHALL BE PROVIDED.

**SUPPORTS:**  
PROVIDE ALL SUPPORTS, FRAMING, ETC. FOR THE PROPER INSTALLATION OF PIPE, EQUIPMENT, ETC. FABRICATED FROM STRUCTURAL STEEL SHAPES AND TO PREVENT SAGGING, VIBRATION AND STRAIN, AND TO PROVIDE FOR EXPANSION AND CONTRACTION.

**SYSTEM BALANCING:**  
THE HEATING VENTILATING AND AIR CONDITIONING SHALL BE TESTED AND BALANCED TO DEMONSTRATE THAT SPECIFIED CAPACITIES OF THE VARIOUS PARTS OF ALL SYSTEMS AS INDICATED IN THE CONTRACT DOCUMENTS CAN BE MET AND ALL CONTROLS ARE FUNCTIONING PROPERLY.

**PLUMBING:**  
**PLUMBING FIXTURES:**  
NO ADDITIONAL COST TO THE OWNER.  
ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE, AND THE CONTRACTOR SHALL MAKE GOOD ANY DEFECTS WITHIN THAT PERIOD AT PROXIE AND CONNECT ALL FIXTURES SHOWN ON DRAWINGS OR HEREIN CALLED FOR. ALL FIXTURES SHALL BE EQUAL IN ALL RESPECT TO THE FIXTURE NUMBERS HEREIN REFERRED TO. FIXTURE NUMBERS ARE USED FOR ESTABLISHING A STANDARD. ALL FIXTURE TRIM SHALL BE BY ONE MANUFACTURER ONLY. NO MIXING OF TRIM OR FIXTURES WILL BE PERMITTED, UNLESS OTHERWISE SPECIFIED.  
FIXTURE CONNECTIONS SHALL BE CHROME PLATED FLEXIBLE BRASS PIPE. ALL WATER SUPPLY CONNECTIONS SHALL BE PROVIDED WITH WHEEL HANDLE STOPS OR VALVES, WITH ESCUTCHEONS.

**SANITARY AND STORM PIPING:**  
ALL 2" AND LARGER WASTE AND STORM PIPING ABOVE GROUND SHALL BE SCHED. 40 PVC PIPE.  
ALL 1 1/2" AND SMALLER WASTE AND STORM PIPING ABOVE GROUND SHALL BE PVC.

**DRAINAGE FITTINGS:**  
ALL WASTE AND STORM PIPING BELOW GRADE SHALL BE SERVICE PVC.  
ROOF SUMP (RS) ROOF SUMP SHALL BE SMITH NO. 1019, DUCTO CAST IRON BODY WITH POLYETHYLENE 15" DIA. DOME.

**CLEANOUTS AND ACCESS COVERS (CO):**  
PROVIDE CLEANOUTS AT THE FOOT OR BASE OF EACH VERTICAL WASTE OR STORM STACK. IN DRAINAGE LINES AT ALL CHANGES IN DIRECTION AND AT 50'-0" INTERVALS IN LINES 4" AND UNDER HAVING NO CHANGES IN DIRECTION AND 100'-0" IN LINES OVER 4".

**GAS PIPING:**  
STANDARD WEIGHT SCHEDULE 40, ASTM 1-20 BLACK STEEL PIPE WITH CLASS 150 SCREWED MALLEABLE IRON FITTINGS.

**GAS VALVE:**  
GAS VALVE SHALL BE NON-LUBRICATED PLUG VALVES, ACP OR DEZURK. PROVIDE PLUG VALVES AT ALL CONNECTIONS TO EQUIPMENT.

**DOMESTIC WATER PIPING:**  
ABOVE GROUND, TYPE L, HARD TEMPER COPPER TUBE WITH WROUGHT COPPER FITTINGS AND NON-LEAD SOLDER JOINTS.

**DOMESTIC WATER VALVES:**  
A. GATE VALVE: JOHNSON 901-A BRONZE BALL VALVE, SCREWED ENDS, OR APPROVAL EQUAL.  
B. BALANCE VALVE: DEZURK 4275 BRONZE OR APPROVED EQUAL, FLUSHING AND STERILIZATION.  
UPON COMPLETION OF WATER DISTRIBUTION PIPING SYSTEM AND PRIOR TO BEING PLACED INTO SERVICE, THE SYSTEM, INCLUDING FITTINGS AND PUMPS, SHALL BE FLUSHED AND DISINFECTED AS FOLLOWS:  
A. SYSTEM SHALL BE FLUSHED WITH WATER AT MAXIMUM SYSTEM

**PRESSURE:**  
B. OPEN ALL DRAINS AND FIXTURE VALVES IN THE BUILDING, STARTING WITH THE VALVE NEAREST THE WATER SERVICE LINE AND PERMIT THE WATER TO RUN CLEAR FOR TEN (10) MINUTES.  
C. DISINFECTING SHALL BE ACCOMPLISHED BY INTRODUCING LIQUID D. THE CHLORINATION AGENT SHALL BE APPLIED AT THE BEGINNING OF THE WATER MAIN TO BE DISINFECTED.

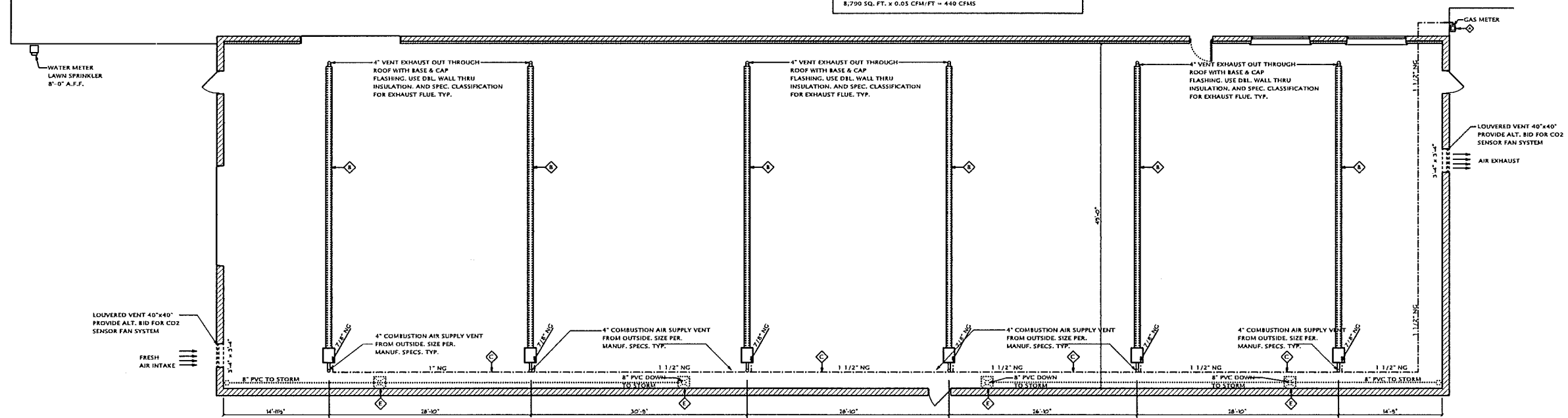
**PIPE INSULATION:**  
INSULATION SHALL BE LOW PRESSURE MOLDED SECTION FIBROUS GLASS PIPE INSULATED WITH FACTORY-APPLIED ALL SERVICE JACKET. FITTINGS AND VALVE BODIES SHALL BE INSULATED WITH FIBROUS GLASS SLACKET BUL UP TO THE THICKNESS OF THE ADJACENT INSULATION AND SEALED WITH INSULATING TAPE AND JACKETED TO MATCH INSULATION, OR WITH MOLDED FIBROUS GLASS FITTINGS INSTALLED WITH BOTH LONGITUDINAL AND CIRCUMFERENTIAL JOINTS FULLY BUTTERED WITH PROPER ADHESIVE. LAPS SHALL BE FASTENED WITH OUTWARD CLIPPING STAPLES, HANGERS, ETC. SHALL NOT PENETRATE

**VAPOR BARRIER:**  
IN LIEU OF BUILT-UP INSULATION ON FITTING, ZESTON FITTING COVERS MAY BE USED.  
ALL INSULATION SHALL BE CLASS A OR ACCORDANCE WITH ASTM STANDARD NO. E-84 NFPA NO. 255, AND U.S. STANDARD NO. 723 AS FOLLOWS:  
ALL MATERIAL SHALL BE MANUFACTURED BY ONE OF THE LISTED APPROVED MANUFACTURERS INSTRUCTIONS, EXCEPT WHERE THESE INSTRUCTIONS CONFLICT WITH THE SPECIFICATION HEREINAFTER STATED, IN WHICH CASE THE SPECIFICATIONS SHALL GOVERN ALL ADHESIVES, BONDS AND OTHER FASTENING MATERIALS AND DEVICES SHALL BE SUPPLIED AS REQUIRED TO PROPERLY INSTALL THE INSULATION MATERIALS BEING FURNISHED.  
APPROVED MANUFACTURERS: ARMOSTRONG CO., CESTIAN-TEED, JOHNSMANVILLE CO., OWENS CORNING FIBERGLASS.

**PIPE INSULATION SCHEDULE:**  
PIPE INSULATION THICKNESS SHALL COMPLY WITH THE MINIMUM REQUIREMENTS OF ASHRAE 90-75 AND THE FOLLOWING:  
PIPE DIAMETER 1" AND LESS 1-1/4" - 2" 2-1/2" - 4" 6"

| MECHANICAL EQUIPMENT. |            |              |        |         |           |         |                      |             |              |
|-----------------------|------------|--------------|--------|---------|-----------|---------|----------------------|-------------|--------------|
| MANUFACTURE           | MODEL      | BTU          | LENGTH | WEIGHT  | MOUNT HT. | GAS SP. | COMBUSTION & VENT    | ELECT POWER | AMPS         |
| RE-VEBER-RAY          | HL3-40-175 | 175,000 BTUS | 40'-0" | 190 LBS | 18'-0"    | 7/8"    | 4" SIDE WALL OR ROOF | 120V 1PH    | 4.4 STARTING |

**REQUIRED FRESH AIR FOR STORAGE AREAS**  
8,790 SQ. FT. x 0.05 CFM/FT. = 440 CFMS



| LEGEND |   |  |
|--------|---|--|
|        | 1" GAS SERVICE TO BUILDING                                    |  |
|        | INFRARED TUBE HEATER 125,000 BTU (40'-0" LONG) TYPICAL OF (6) |  |
|        | NATURAL GAS LINE (BLACK PIPE ABOVE GROUND)                    |  |
|        | 8" PVC DRAIN PIPE SCHED. 40                                   |  |
|        | 8" SCUPPER FROM ROOF (SEE ROOF PLAN)                          |  |

**Mechanical & Plumbing Plan**  
SCALE: 1/4" = 1'-0"

**MECHANICAL NOTES**  
**STORM SEWER SYSTEM NOTES:**  
1. CLEAN ALL ROOF SUMPS INTO STORM SEWER 1/4" CIVIL DRAWINGS FOR CONNECTIONS.  
**MECHANICAL HVAC NOTES:**  
1. MECHANICAL CONTRACTOR TO PROVIDE & INSTALL VENTING FOR INFRARED TUBE HEATERS OUT ROOF W/ BASE AND CAP FLASHING.  
2. GAS PIPING SHALL BE DONE BY THE MECHANICAL CONTRACTOR PER CITY COMPANY AND AERATED HEATER COMPANY.  
3. ELECTRICIAN TO PROVIDE NECESSARY POWER TO HEATER.

**JMP**  
Design + Build, Inc.  
4133 CASS AVE.  
UTICA, MICHIGAN 48317  
TEL 586.731.0600  
JMP@JMPHOTMAIL.COM

THE IDEAS AND DESIGN CONCEPTS EXPRESSED HEREIN AND THE GRAPHICALLY DISPLAYED ARRANGEMENTS OF THEIR COMPONENTS REPRESENTED BY THIS DRAWING HAVE BEEN DEVELOPED FOR THE EXCLUSIVE USE OF THE SPECIFIED PROJECT AND ARE THE SOLE PROPERTY OF JMP Design + Build, Inc. INCORPORATED. A CONVEYANCE OR DISCLOSURE OF THE IDEAS DESIGN CONCEPTS OR USE OF ANY GRAPHICALLY DISPLAYED ARRANGEMENTS OF THE COMPONENTS SHALL BE AT THE DISCRETION AND ONLY THROUGH THE WRITTEN CONSENT OF JMP Design + Build, Inc. ALL MATERIALS HEREIN ARE PROPRIETARY AND COPYRIGHTED

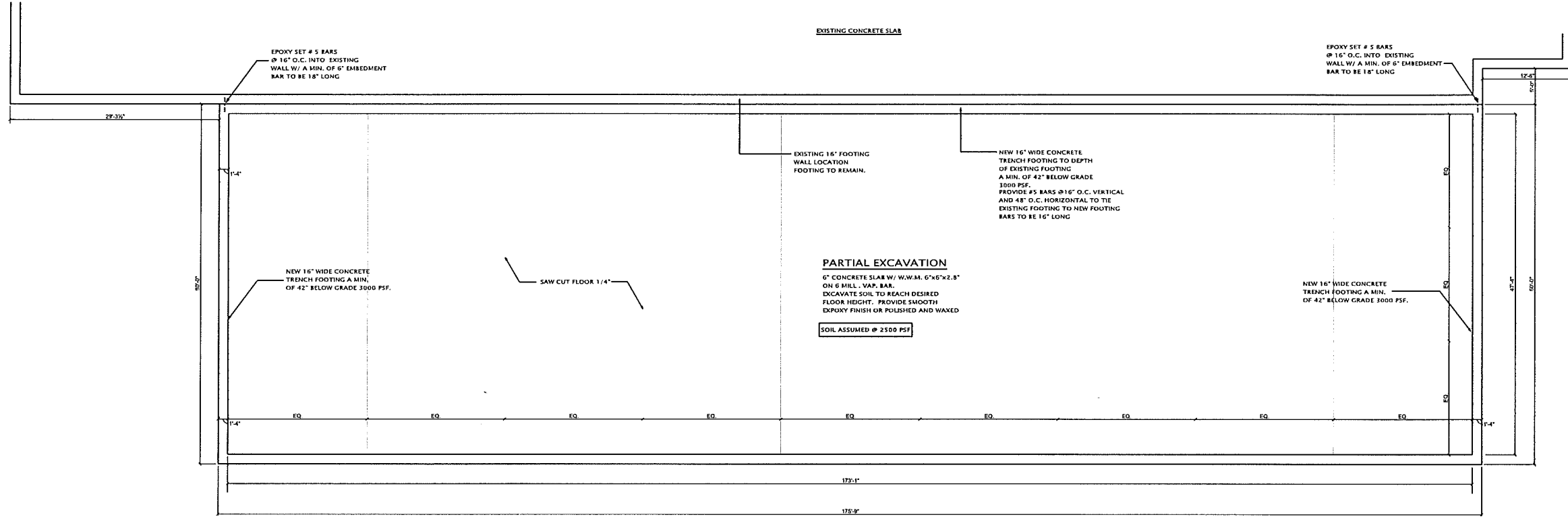
**E.D.S.I.**  
2960 BOND STREET  
ROCHESTER HILLS, MI

**BUILDER**  
BRIAN MATLES

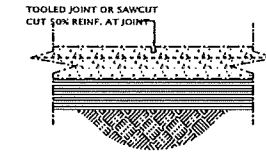


**SHEET TITLE:**  
Mechanical & Plumbing Plan

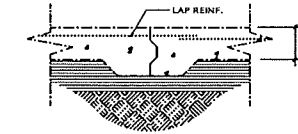
**DATE:** 05-09-12  
**DRAWN BY:** J.P.  
03-12-15  
04-28-15  
**CHECKED BY:** J.P.  
**JOB NUMBER:** 12 - 142  
**SHEET NUMBER:**



NORTH  
  
**FOUNDATION PLAN**  
 SCALE: 1/8" = 1'-0"



**A**  
**S-1** TYP. CONTROL JOINT DETAIL  
 SCALE: DWG - NTS



**A**  
**S-1** TYP. CONSTRUCTION JOINT DETAIL  
 SCALE: DWG - NTS

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BUILDER  
**BRIAN MATLES**



SHEET TITLE:  
**FOUNDATION PLAN**

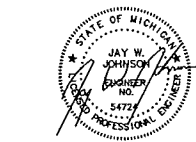
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CIVIL ENGINEERS  
LAND SURVEYORS  
LAND PLANNERS

NOWAK & FRAUS ENGINEERS  
46777 WOODWARD AVE.  
PONTIAC, MI 48342-5032  
TEL (248) 332-7931  
FAX (248) 332-8257

SEAL



PROJECT  
2960 Bond Street  
Building Addition

CLIENT  
Engineering Design  
Services, Inc  
2960 Bond Street  
Rochester Hills, MI 48309

Contact: Rock Haas  
Phone: (248) 299-9440

PROJECT LOCATION  
Part of the SW 1/4  
of Section 29  
T.3N., R. 11E.  
Pt. of "Avon Tech Park Sub."  
City of Rochester Hills,  
Oakland County, Michigan

SHEET  
General Site Plan



Know what's below  
Call before you dig.

REVISIONS  
4-30-2015 REVIEW #1

DRAWN BY:  
J. Johnson

DESIGNED BY:  
J. Johnson

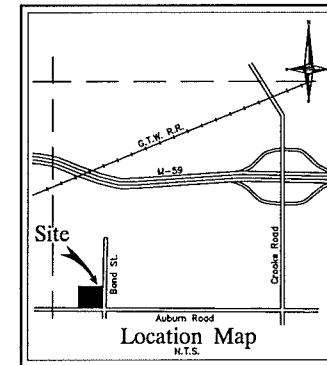
APPROVED BY:  
J. Johnson

DATE  
02-25-2015

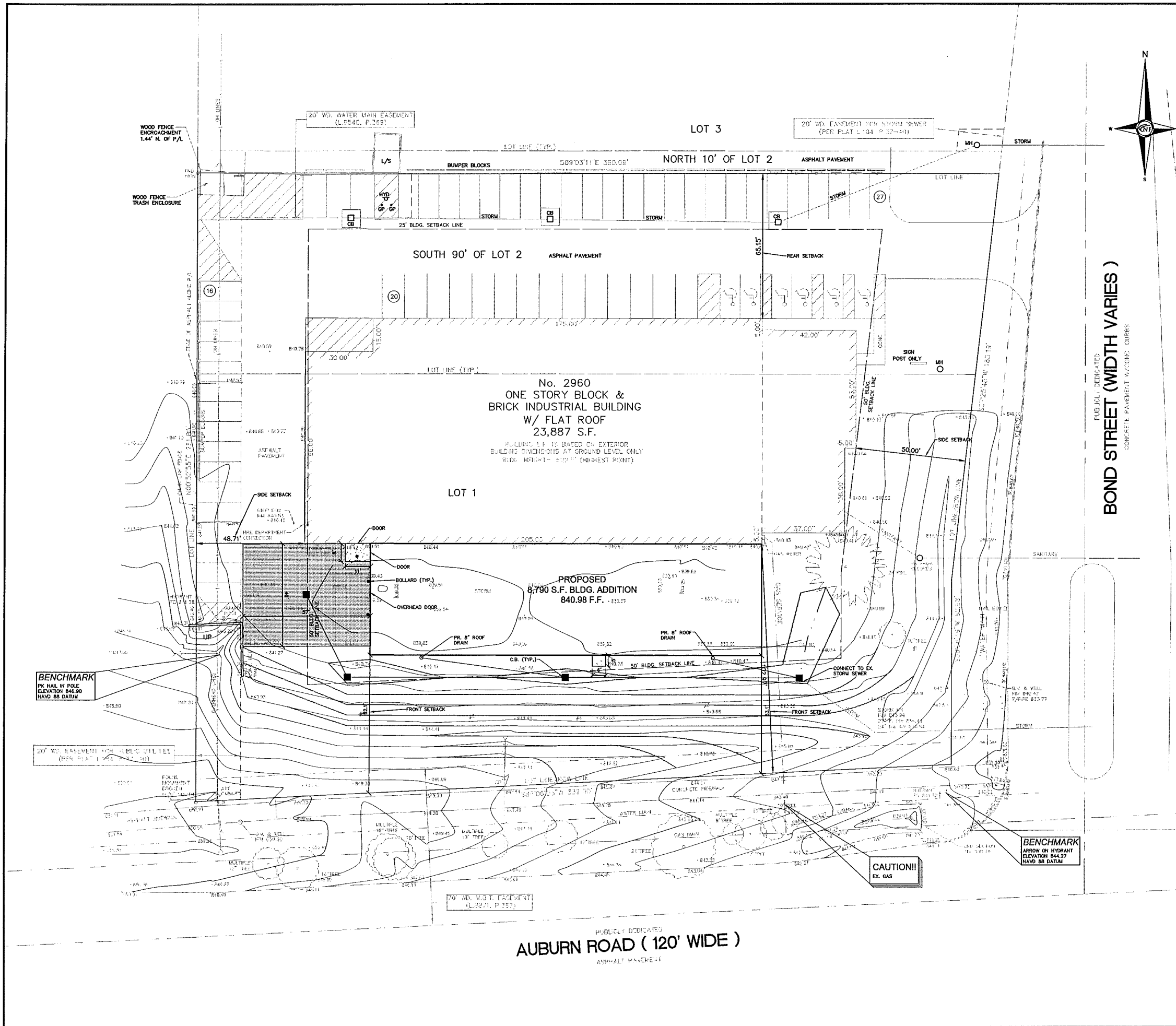
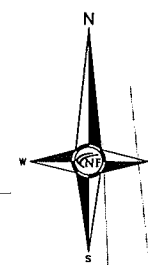
SCALE: 1" = 20'

NFE JOB NO.  
A703-02

SHEET NO.  
C1



BOND STREET (WIDTH VARIES)  
CONCRETE PAVEMENT WITH CURBS



**SITE DATA**

EXISTING SITE ZONING: I-1, LIGHT INDUSTRIAL  
EXISTING SITE AREA: 94,726 S.F. OR 2.17 ACRES  
PROPOSED BUILDING HEIGHTS: TWO-STORY SHOP

| YARD SETBACKS     | REQUIRED | PROVIDED     |
|-------------------|----------|--------------|
| FRONT (PROGRESS): | 50'      | 53.17/62.11' |
| SIDE:             | 15'      | 48.71/50'    |
| REAR:             | 50'      | 65.15'       |

PARKING REQUIRED:  
SHOP: 1 SPACE PER 300 S.F. BASED ON 90% USABLE  
OFFICE: 1 SPACE PER 350 S.F. BASED ON 90% USABLE

REQUIRED:  
EX. OFFICE AREA: 3,597 S.F. X 90% = 3,237 S.F.  
3,237 S.F. / 350 = 9.2 OR 9 SPACES REQUIRED  
EX. SHOP AREA: 20,290 S.F. X 90% = 18,261 S.F.  
18,261 S.F. / 500 = 36.5 OR 37 SPACES REQUIRED  
NEW SHOP AREA: 8,790 S.F. X 90% = 7,911 S.F.  
7,911 S.F. / 500 = 15.8 OR 16 SPACES REQUIRED  
TOTAL PARKING REQUIRED: 62 SPACES  
TOTAL PARKING PROVIDED: 62 SPACES  
INCLUDING 6 BARRIER FREE SPACES

**FIRE DEPARTMENT NOTES**

FIRE LANES SHALL BE DESIGNATED BY THE FIRE CODE OFFICIAL, AND SHALL BE CONSPICUOUSLY POSTED ON BOTH SIDES OF THE FIRE LANE, WITH FIRE LANE SIGNS SPACED NOT MORE THAN 100 FEET APART. FIRE LANE SIGNS SHALL READ "NO STOPPING, STANDING, PARKING, FIRE LANE"

CONSTRUCTION SITES SHALL BE SAFEGUARDED IN ACCORDANCE WITH IFC 2006 CHAPTER 14

OPEN BURNING IS NOT PERMITTED INCLUDING THE BURNING OF TRASH, DEBRIS, OR LAND CLEARING MATERIALS. OPEN BURNING FOR WARMING OF SAND AND/OR WATER FOR PREPARATION OF MORTAR SHALL BE WITHIN THE CITY OF ROCHESTER HILLS BURN PERMIT GUIDELINES.

PROVIDE A "NO PARKING FIRE DEPARTMENT CONNECTION" SIGN OVER THE FIRE DEPARTMENT CONNECTION.

FIRE DEPARTMENT CONNECTIONS NOT LOCATED ON THE STREET FRONT OF THE BUILDING REQUIRE A WHITE CLEAR STRIPE ABOVE IT WITH THE LIGHT TIED INTO THE FIRE ALARM SYSTEM.

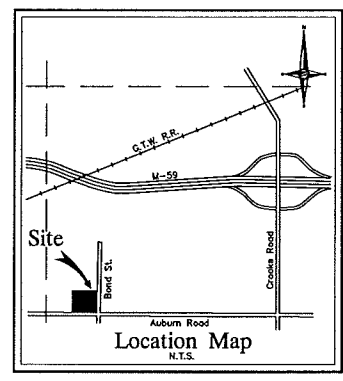
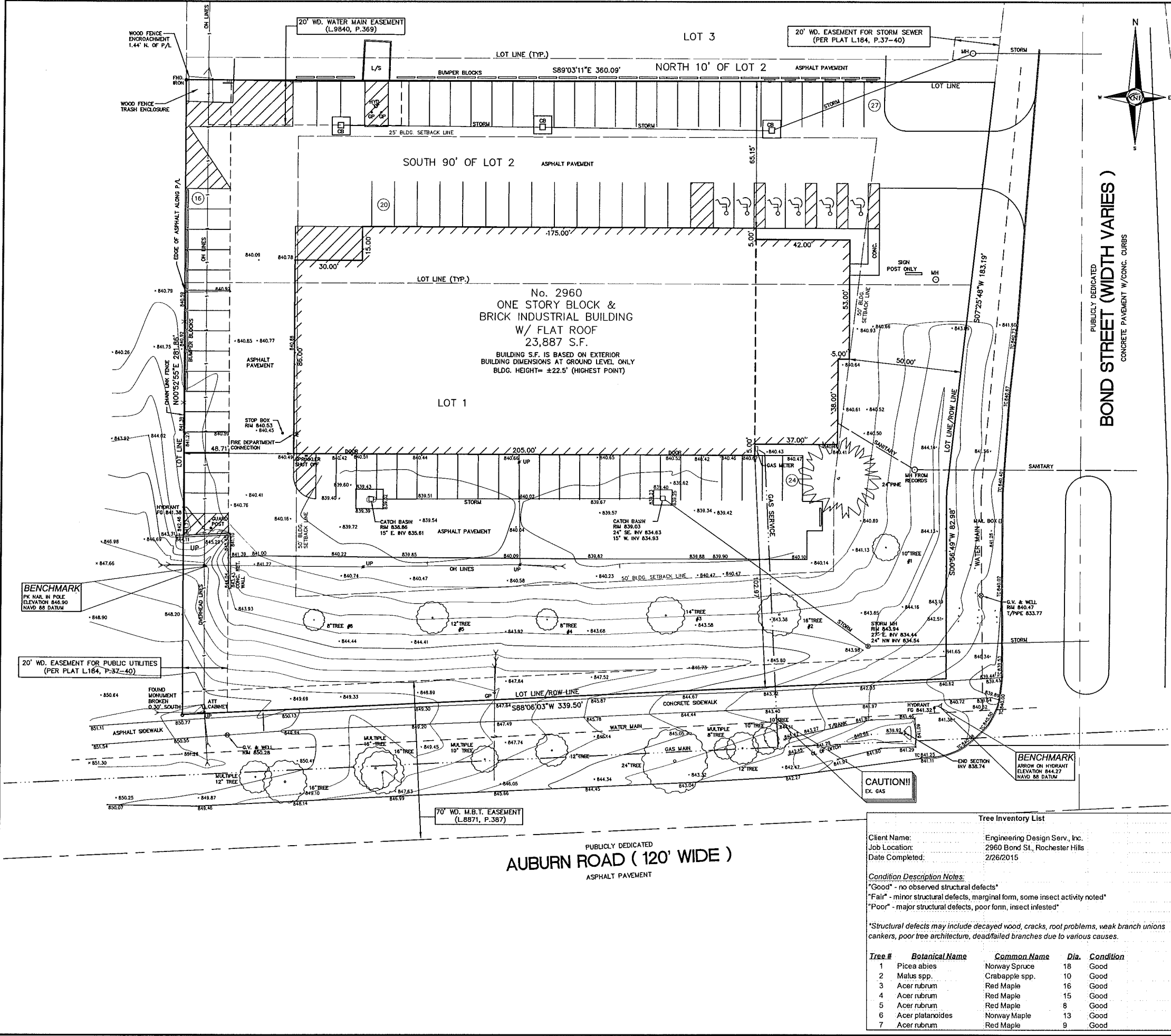
**PAVING LEGEND**

|  |                            |
|--|----------------------------|
|  | PROPOSED CONCRETE PAVEMENT |
|  | PROPOSED ASPHALT PAVEMENT  |

**LEGEND**

|  |                            |
|--|----------------------------|
|  | EXISTING SANITARY SEWER    |
|  | SAN. CLEAN OUT             |
|  | EXISTING WATERMAIN         |
|  | EXISTING STORM SEWER       |
|  | EX. R. Y. CATCH BASIN      |
|  | EXISTING BURIED CABLES     |
|  | OVERHEAD LINES             |
|  | EXISTING GAS MAIN          |
|  | PR. SANITARY SEWER         |
|  | PR. WATER MAIN             |
|  | PR. STORM SEWER            |
|  | PR. R. Y. CATCH BASIN      |
|  | PROPOSED LIGHT POLE        |
|  | PR. TOP OF CURB ELEVATION  |
|  | PR. GUTTER ELEVATION       |
|  | PR. TOP OF WALK ELEVATION  |
|  | PR. TOP OF PAVT. ELEVATION |
|  | FRESH GRADE ELEVATION      |

PUBLICLY DEDICATED  
AUBURN ROAD (120' WIDE)  
ASPHALT PAVEMENT



**NF ENGINEERS**  
 CIVIL ENGINEERS  
 LAND SURVEYORS  
 LAND PLANNERS

NOWAK & FRAUS ENGINEERS  
 46777 WOODWARD AVE.  
 PONTIAC, MI 48342-5032  
 TEL. (248) 332-7931  
 FAX. (248) 332-8257

SEAL

PROJECT  
 2960 Bond Street  
 Building Addition

CLIENT  
 Engineering Design  
 Services, Inc  
 2960 Bond Street  
 Rochester Hills, MI 48309

Contact: Rock Haas  
 Phone: (248) 299-9440

PROJECT LOCATION  
 Part of the SW 1/4  
 of Section 29  
 T.3N., R. 11E.  
 Pt. of "Avon Tech Park Sub."  
 City of Rochester Hills,  
 Oakland County, Michigan

SHEET  
 Boundary and Topographic  
 Survey

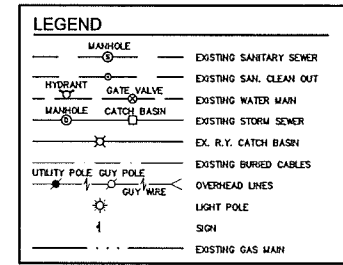


**LEGAL DESCRIPTION**

Land in the City of Rochester Hills, Oakland County, Michigan is described as follows:  
 Lot 1 and South 90 feet of Lot 2, AVON TECH PARK, according to the plat thereof as recorded in Book 184, pages 37, 38, 39 and 40 of Plats, Oakland County Records.  
 Tax Item No: 15-29-351-014

**TOPOGRAPHIC SURVEY NOTES**

ALL ELEVATIONS ARE EXISTING ELEVATIONS, UNLESS OTHERWISE NOTED.  
 UTILITY LOCATIONS WERE OBTAINED FROM MUNICIPAL OFFICIALS AND RECORDS OF UTILITY COMPANIES, AND NO GUARANTEE CAN BE MADE TO THE COMPLETENESS, OR EXACTNESS OF LOCATION.



**Tree Inventory List**

Client Name: Engineering Design Serv., Inc.  
 Job Location: 2960 Bond St., Rochester Hills  
 Date Completed: 2/26/2015

**Condition Description Notes:**  
 "Good" - no observed structural defects\*  
 "Fair" - minor structural defects, marginal form, some insect activity noted\*  
 "Poor" - major structural defects, poor form, insect infested\*  
 \*Structural defects may include decayed wood, cracks, root problems, weak branch unions, cankers, poor tree architecture, dead/failed branches due to various causes.

| Tree # | Botanical Name   | Common Name    | Dia. | Condition |
|--------|------------------|----------------|------|-----------|
| 1      | Picea abies      | Norway Spruce  | 18   | Good      |
| 2      | Malus spp.       | Crabapple spp. | 10   | Good      |
| 3      | Acer rubrum      | Red Maple      | 16   | Good      |
| 4      | Acer rubrum      | Red Maple      | 15   | Good      |
| 5      | Acer rubrum      | Red Maple      | 8    | Good      |
| 6      | Acer platanoides | Norway Maple   | 13   | Good      |
| 7      | Acer rubrum      | Red Maple      | 9    | Good      |

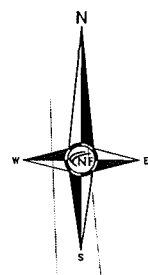
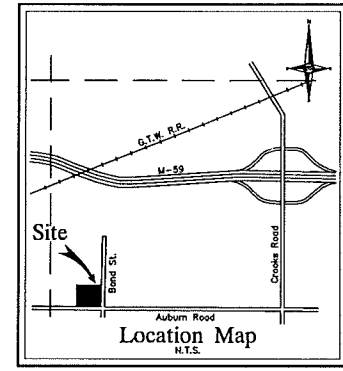
PUBLICLY DEDICATED  
**AUBURN ROAD ( 120' WIDE )**  
 ASPHALT PAVEMENT

PUBLICLY DEDICATED  
**BOND STREET (WIDTH VARIES )**  
 CONCRETE PAVEMENT W/CONC. CURBS

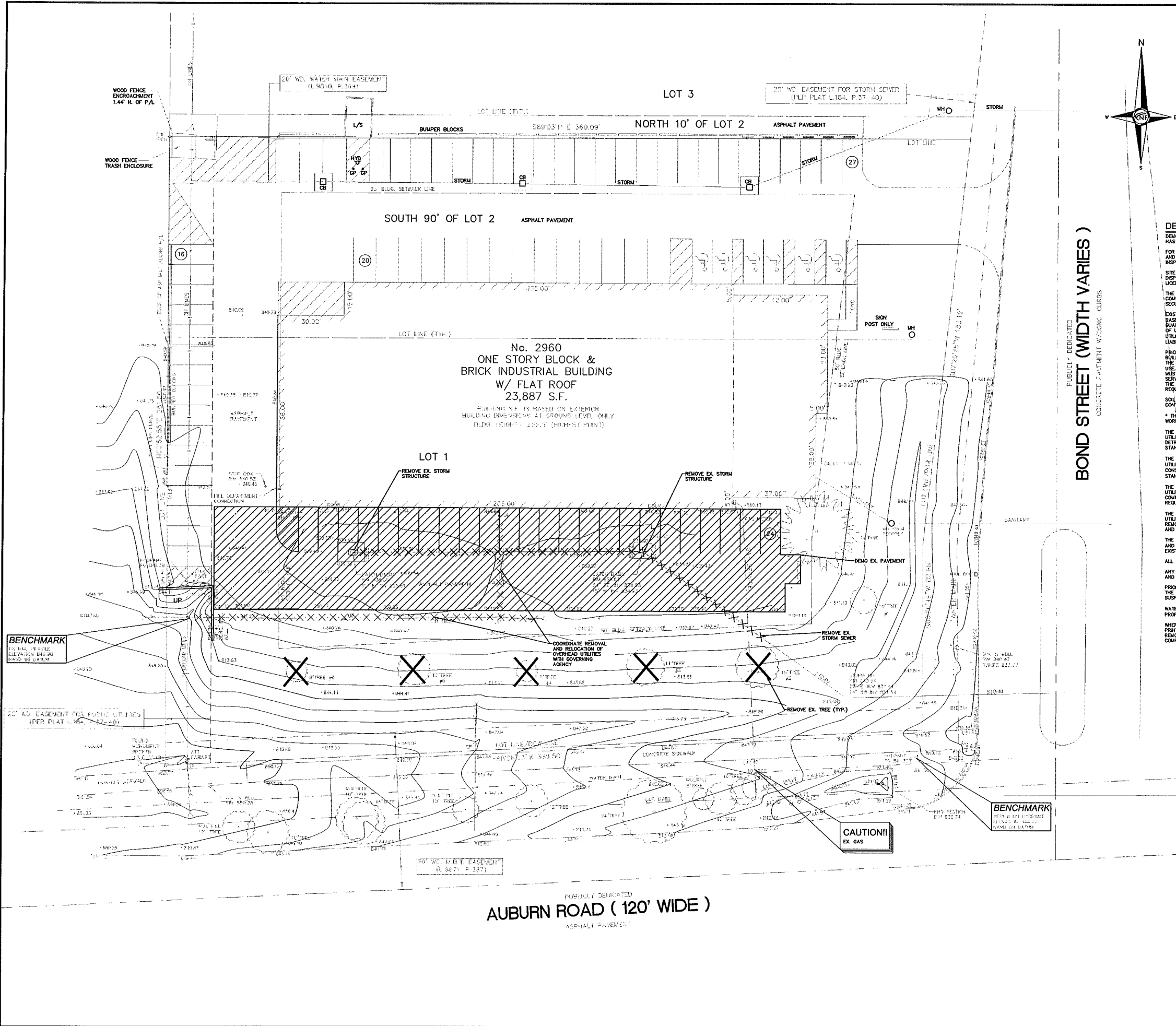


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PONTIAC, MI 48342-5032  
TEL. (248) 332-7931  
FAX. (248) 332-8257



PUBLICLY DEDICATED  
**BOND STREET (WIDTH VARIES)**  
CONCRETE PAVEMENT W/ CONC. CURBS



**No. 2960  
ONE STORY BLOCK &  
BRICK INDUSTRIAL BUILDING  
W/ FLAT ROOF  
23,887 S.F.**

HEIGHTS ARE BASED ON EXTERIOR  
BUILDING DIMENSIONS AT GROUND LEVEL ONLY  
B.D.G. HEIGHTS 23.00' (MINIMUM HEIGHT)

**DEMOLITION NOTES**

DEMOLITION OF SITE IMPROVEMENTS SHALL BE ALLOWED ONLY AFTER AN APPROVED PERMIT HAS BEEN SECURED FROM THE PUBLIC AGENCY HAVING JURISDICTION OVER SAID DEMOLITION. FOR ANY DEMOLITION WITHIN PUBLIC RIGHT-OF-WAY, THE CONTRACTOR SHALL PAY FOR, AND SECURE, ALL NECESSARY PERMITS AND LICENSES AND MAKE ARRANGEMENTS FOR ALL SITE INSPECTIONS.

SITE DEMOLITION INCLUDES THE COMPLETE REMOVAL OF SITE IMPROVEMENTS AND OFF-SITE DISPOSAL. DEBRIS SHALL BE TRANSPORTED TO AN APPROPRIATE DISPOSAL FACILITY THAT IS LICENSED FOR THAT TYPE OF DEBRIS.

THE CONTRACTOR SHALL COORDINATE TRUCK ROUTES WITH THE MUNICIPALITY PRIOR TO COMMENCEMENT OF SITE DEMOLITION. ALL TRUCKS SHALL BE TAPPED OR PROPERLY SECURED TO CONTAIN DEMOLITION DEBRIS PRIOR TO LEAVING SITE.

EXISTING ON-SITE UNDERGROUND UTILITIES AND BUILDING SERVICES HAVE BEEN INDICATED BASED UPON THE BEST AVAILABLE UTILITY RECORDS AND/OR ON-SITE INSPECTION. NO GUARANTEE IS MADE BY THE DESIGN ENGINEER, AS TO THE COMPLETENESS OR ACCURACY OF UTILITY DATA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF UTILITY INFORMATION (THE DESIGN ENGINEER MAKES NO GUARANTEE OR ASSURES ANY LIABILITY AS TO THE COMPLETENESS AND/OR ACCURACY OF UTILITY DATA).

PRIOR TO THE REMOVAL OR ABANDONMENT OF ANY EXISTING UNDERGROUND UTILITY OR BUILDING SERVICE LINES CALLED FOR IN THE PLANS OR DISCOVERED DURING EXCAVATION, THE CONTRACTOR MUST DETERMINE IF UTILITY LINES OR BUILDING SERVICES ARE STILL IN USE. IF THE UTILITY LINE OR BUILDING SERVICE IS STILL IN USE/ACTIVE, THE CONTRACTOR MUST TAKE ALL THE NECESSARY STEPS TO GUARANTEE THAT THE UTILITY LINE OR BUILDING SERVICE IS RECONNECTED WITHOUT AN INTERRUPTION IN SERVICE. THE RECONNECTION OF THE UTILITY LINE OR BUILDING SERVICE MUST BE IN ACCORDANCE WITH THE STANDARDS AND REQUIREMENTS OF THE APPROPRIATE GOVERNMENTAL AGENCY OR PRIVATE UTILITY COMPANY.

SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED BY THE CONTRACTOR PRIOR TO SITE DEMOLITION.

\* THE CONTRACTOR SHALL NOTIFY MISS DING (1-800-422-7171) A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO THE START OF THE SITE DEMOLITION.

THE CONTRACTOR SHALL COORDINATE THE REMOVAL AND/OR RELOCATION OF EXISTING UTILITY POLES AND BUILDING SERVICES WITH THE DETROIT EDISON COMPANY. REMOVAL OF DETROIT EDISON ELECTRICAL SERVICES SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND REQUIREMENTS OF DETROIT EDISON.

THE CONTRACTOR SHALL COORDINATE THE REMOVAL AND/OR RELOCATION OF EXISTING UTILITY POLES AND BUILDING SERVICES WITH CONSUMERS ENERGY/MICHIGAN. REMOVAL OF CONSUMERS ENERGY/MICHIGAN GAS SERVICES SHALL BE IN ACCORDANCE WITH THE STANDARDS AND REQUIREMENTS OF CONSUMERS ENERGY/MICHIGAN.

THE CONTRACTOR SHALL COORDINATE THE REMOVAL AND/OR RELOCATION OF EXISTING UTILITY POLES AND BUILDING SERVICES WITH AMERITECH. REMOVAL OF AMERITECH COMMUNICATION SERVICES SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND REQUIREMENTS OF AMERITECH.

THE CONTRACTOR SHALL COORDINATE THE REMOVAL AND/OR RELOCATION OF EXISTING UTILITY POLES AND BUILDING SERVICES WITH THE APPROPRIATE CABLE MEDIA COMPANY. REMOVAL OF CABLE SERVICES SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND REQUIREMENTS OF THE CABLE COMPANY.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFICATION OF PRIVATE UTILITY COMPANIES AND COORDINATE UTILITY SERVICE SHUT OFF/DISCONNECT, PRIOR TO DEMOLITION OF EXISTING STRUCTURES OR PROPERTIES.

ALL UTILITY METERS SHALL BE REMOVED BY THE APPROPRIATE UTILITY COMPANY.

ANY ON-SITE STORM SEWER FACILITIES LOCATED DURING DEMOLITION SHALL BE REMOVED AND BULK HEADED AT THE PROPERTY LINE IF INDICATED FOR REMOVAL ON THE PLANS.

PRIOR TO BUILDING DEMOLITION, ALL HAZARDOUS MATERIAL SHALL BE REMOVED BY OTHERS. THE DEMOLITION CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER SHOULD ANY SUSPICIOUS MATERIAL BE FOUND.

WATER SERVICES AND/OR STOP-BOX SHALL BE PRESERVED AND BULK HEADED AT THE PROPERTY LINE OR AS DIRECTED BY THE OWNER'S REPRESENTATION.

WHERE EXISTING BUILDINGS PLANNED FOR DEMOLITION FALL WITHIN PROPOSED BUILDING FOOT PRINTS, BASEMENT FLOOR SLABS, FOUNDATION WALLS AND FOOTINGS SHALL BE COMPLETELY REMOVED AND BACK FILLED WITH MOIST CLASS B GRANULAR MATERIAL AND BE MACHINE COMPACTED TO A MINIMUM OF 95% OF MATERIALS MAXIMUM DENSITY.

**ESTIMATED QUANTITIES**

| DESCRIPTION           | QUANTITY | UNITS |
|-----------------------|----------|-------|
| REMOVE EX. PAVEMENT   | 1314     | S.Y.  |
| REMOVE EXISTING TREES | 5        | EA.   |
| REMOVE EXISTING C.B.  | 2        | EA.   |
| REMOVE EXISTING STORM | 200      | L.F.  |

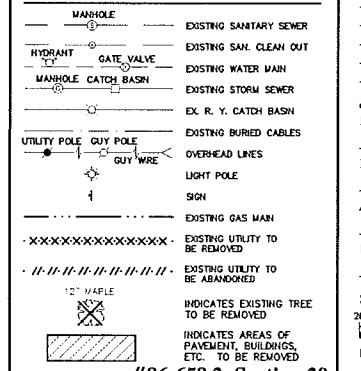
**TOPOGRAPHIC SURVEY NOTES**

ALL ELEVATIONS ARE EXISTING ELEVATIONS, UNLESS OTHERWISE NOTED.

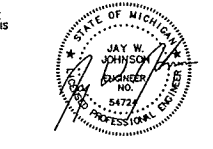
UTILITY LOCATIONS WERE OBTAINED FROM MUNICIPAL OFFICIALS AND RECORDS OF UTILITY COMPANIES, AND NO GUARANTEE CAN BE MADE TO THE COMPLETENESS, OR EXACTNESS OF LOCATION.

THIS SURVEY MAY NOT SHOW ALL EASEMENTS OF RECORD UNLESS AN UPDATED TITLE POLICY IS FURNISHED TO THE SURVEYOR BY THE OWNER.

**LEGEND**



SEAL



**PROJECT**  
2960 Bond Street  
Building Addition

**CLIENT**  
Engineering Design  
Services, Inc  
2960 Bond Street  
Rochester Hills, MI 48309

**Contact:** Rock Haas  
Phone: (248) 299-9440

**PROJECT LOCATION**  
Part of the SW 1/4  
of Section 29  
T.3N., R. 11E.  
Pt. of "Avon Tech Park Sub."  
City of Rochester Hills,  
Oakland County, Michigan

**SHEET**  
Demolition Plan  
Not to be used for  
construction drawings



**REVISIONS**  
00-00-00

**DRAWN BY:**  
J. Johnson

**DESIGNED BY:**  
J. Johnson

**APPROVED BY:**  
J. Johnson

**DATE:**  
02-25-2015

**SCALE:** 1" = 20'  
0 10 20 30

**NFE JOB NO.** A703-02 **SHEET NO.** C3

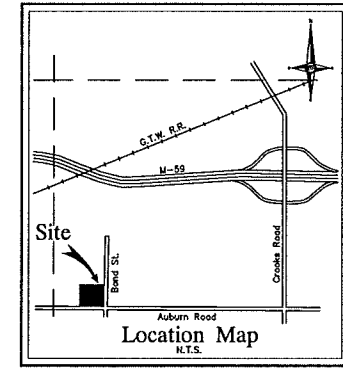
PUBLICLY DEDICATED  
**AUBURN ROAD (120' WIDE)**  
ASPHALT PAVEMENT

#86-658.2, Section 29

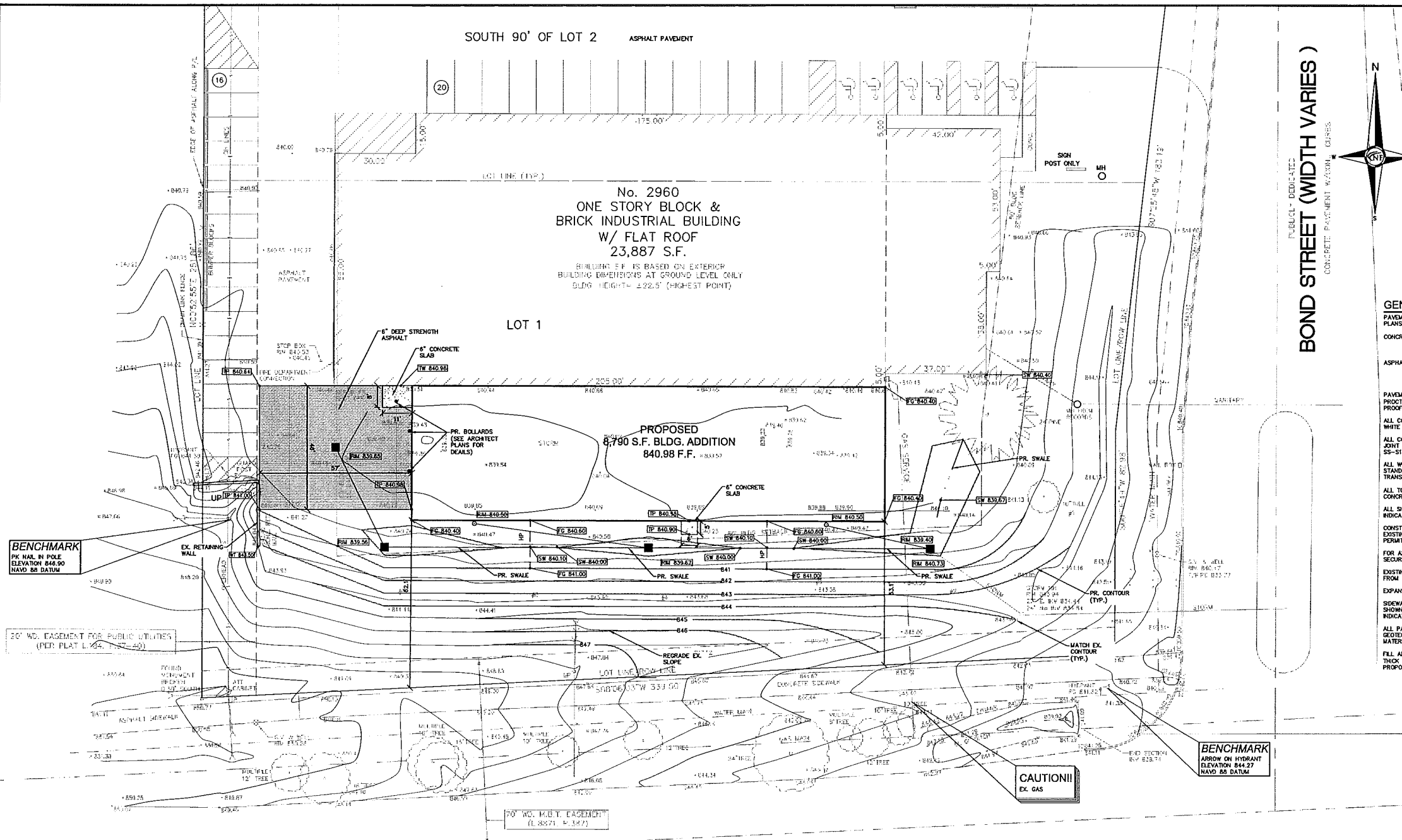


**CIVIL ENGINEERS  
LAND SURVEYORS  
LAND PLANNERS**

**NOWAK & FRAUS ENGINEERS**  
46777 WOODWARD AVE.  
PONTIAC, MI 48342-5032  
TEL. (248) 332-7931  
FAX. (248) 332-8257



PUBLICLY DEDICATED  
**BOND STREET (WIDTH VARIES)**  
CONCRETE PAVEMENT WITH 2" CURBS



**GENERAL PAVING NOTES**

PAVEMENT SHALL BE OF THE TYPE, THICKNESS AND CROSS SECTION AS INDICATED ON THE PLANS AND AS FOLLOWS:

**CONCRETE:** PORTLAND CEMENT TYPE IA (AIR-ENTRAINED) WITH A MINIMUM CEMENT CONTENT OF SIX BAGS PER CUBIC YARD, MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,500 PSI AND A SLUMP OF 1 1/2 TO 3 INCHES.

**ASPHALT:** BASE COURSE - 100T BITUMINOUS MIXTURE NO. 1100L, 20AA; SURFACE COURSE - 100T BITUMINOUS MIXTURE NO. 1100T, 20AA; ASPHALT CEMENT PENETRATION GRADE 85-100, BOND COAT - 100T SS-1H EMULSION AT 0.10 GALLON PER SQUARE YARD; MAXIMUM 2 INCH LIFT.

PAVEMENT BASE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY (MODIFIED PROCTOR) PRIOR TO PLACEMENT OF PROPOSED PAVEMENT. EXISTING SUB-BASE SHALL BE PROOF-ROLLED IN THE PRESENCE OF THE ENGINEER TO DETERMINE STABILITY.

ALL CONCRETE PAVEMENT DRIVEWAYS, CURBS & CUTTERS, ETC., SHALL BE SPRAY CURED WITH WHITE MEMBRANE CURING COMPOUND IMMEDIATELY FOLLOWING FINISHING OPERATION.

ALL CONCRETE PAVEMENT JOINTS SHALL BE FILLED WITH HOT POURED RUBBERIZED ASPHALT JOINT SEALING COMPOUND IMMEDIATELY AFTER SAWCUT OPERATION. FEDERAL SPECIFICATION SS-5164.

ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE MUNICIPALITY AND THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, CURRENT EDITION.

ALL TOP OF CURB ELEVATIONS, AS SHOWN ON THE PLANS, ARE CALCULATED FOR A 6" CONCRETE CURB UNLESS OTHERWISE NOTED.

ALL SIDEWALK RAMPS, CONFORMING TO PUBLIC ACT NO. 8, 1993, SHALL BE INSTALLED AS INDICATED ON THE PLANS.

CONSTRUCTION OF A NEW OR RECONSTRUCTED DRIVE APPROACH CONNECTING TO AN EXISTING STATE OR COUNTY ROADWAY SHALL BE ALLOWED ONLY AFTER AN APPROVED PERMIT HAS BEEN SECURED FROM THE AGENCY HAVING JURISDICTION OVER SAID ROADWAY.

FOR ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY, THE CONTRACTOR SHALL PAY FOR AND SECURE ALL NECESSARY PERMITS AND LIKEWISE ARRANGE FOR ALL INSPECTION.

EXISTING TOPSOIL, VEGETATION AND ORGANIC MATERIALS SHALL BE STRIPPED AND REMOVED FROM PROPOSED PAVEMENT AREA PRIOR TO PLACEMENT OF BASE MATERIALS.

EXPANSION JOINTS SHOULD BE INSTALLED AT THE END OF ALL INTERSECTION RADII.

SIDEWALK RAMPS, CONFORMING TO PUBLIC ACT NO. 8, 1973, SHALL BE INSTALLED AS SHOWN AT ALL STREET INTERSECTIONS AND AT ALL BARBER PRIZE PARKING AREAS AS INDICATED ON THE PLANS.

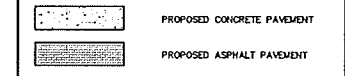
ALL PAVEMENT AREAS SHALL BE PROOF-ROLLED UNDER THE SUPERVISION OF A GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF BASE MATERIALS AND PAVING MATERIALS.

ALL AREAS SHALL BE MACHINE COMPACTED IN UNIFORM LIFTS NOT EXCEEDING 9 INCHES THICK TO 95% OF THE MAXIMUM DENSITY (MODIFIED PROCTOR) PRIOR TO PLACEMENT OF PROPOSED PAVEMENT.

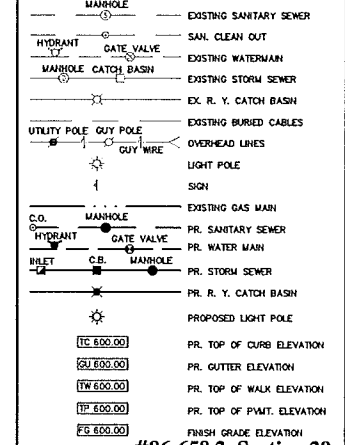
**ESTIMATED QUANTITIES**

| DESCRIPTION                | QUANTITY | UNITS |
|----------------------------|----------|-------|
| 6" ASPHALT ON 8" 21AA BASE | 281      | S.Y.  |
| 4" CONCRETE SIDEWALK       | 88       | S.F.  |
| MASS GRADING               | 1        | L.S.  |
| RESTORATION                | 1        | L.S.  |
| 6" CONCRETE                | 118      | S.F.  |

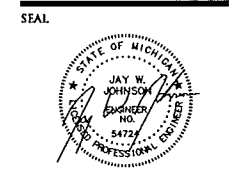
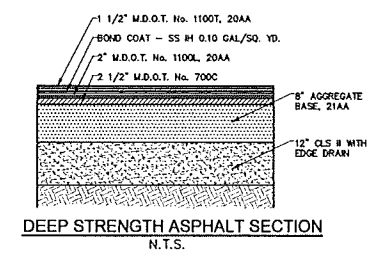
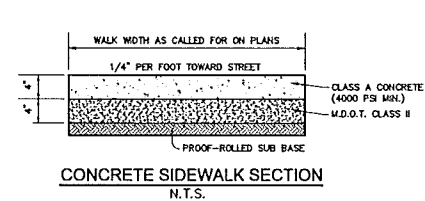
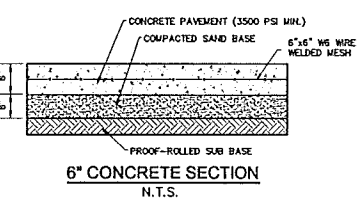
**PAVING LEGEND**



**LEGEND**



PUBLICLY DEDICATED  
**AUBURN ROAD (120' WIDE)**  
ASPHALT PAVEMENT



**PROJECT**  
2960 Bond Street  
Building Addition

**CLIENT**  
Engineering Design  
Services, Inc  
2960 Bond Street  
Rochester Hills, MI 48309

Contact: Rock Haas  
Phone: (248) 299-9440

**PROJECT LOCATION**  
Part of the SW 1/4  
of Section 29  
T.3N., R. 11E.  
Pt. of "Avon Tech Park Sub."  
City of Rochester Hills,  
Oakland County, Michigan

**SHEET**  
Paving & Grading Plan



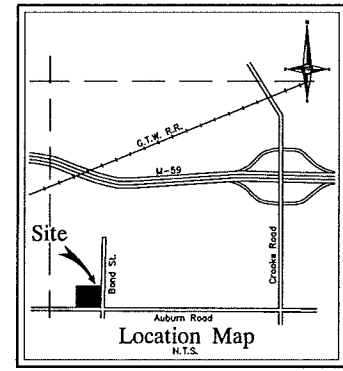
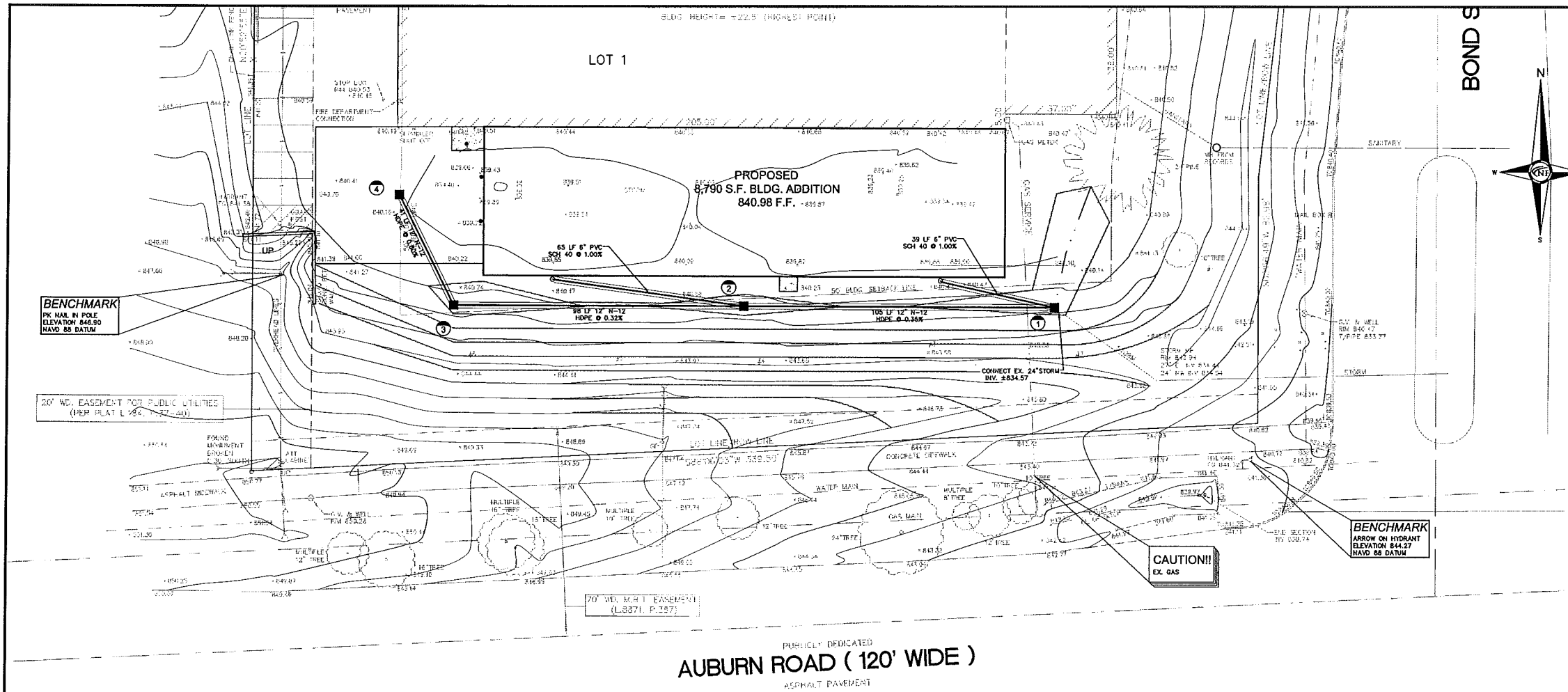
Know what's below  
Call before you dig.

**REVISIONS**  
4-30-2015 REVIEW #1

**DRAWN BY:**  
J. Johnson  
**DESIGNED BY:**  
J. Johnson  
**APPROVED BY:**  
J. Johnson  
**DATE:**  
02-25-2015  
**SCALE:** 1" = 20'  
NFE JOB NO. A703-02  
SHEET NO. C4

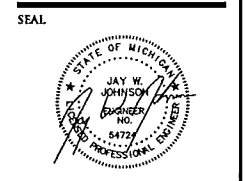
#86-658.2, Section 29





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LAND PLANNERS**

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46777 WOODWARD AVE.  
PONTIAC, MI 48342-5032  
TEL. (248) 332-7931  
FAX. (248) 332-8257



**PROJECT**  
2960 Bond Street  
Building Addition

**CLIENT**  
Engineering Design  
Services, Inc  
2960 Bond Street  
Rochester Hills, MI 48309

Contact: Rock Haas  
Phone: (248) 299-9440

**PROJECT LOCATION**  
Part of the SW 1/4  
of Section 29  
T.3N., R. 11E.  
Pt. of "Avon Tech Park Sub."  
City of Rochester Hills,  
Oakland County, Michigan

| Storm Sewer Structure Schedule |  |
|--------------------------------|--|
| Structure Name                 | Structure Details  |
| #1<br>4' C.B.                  | PR. RIM 839.40<br>PR. 12" W. INV. 834.74<br>PR. 24" SE. INV. 834.57<br>PR. 6" W. INV. 835.40 |
| #2<br>3' C.B.                  | PR. RIM 839.87<br>PR. 12" E. INV. 835.11<br>PR. 12" W. INV. 835.11<br>PR. 6" W. INV. 835.87  |
| #3<br>3' C.B.                  | PR. RIM 839.56<br>PR. 12" E. INV. 835.42<br>PR. 12" W. INV. 835.52                           |
| #4<br>3' C.B.                  | PR. RIM 839.85<br>PR. 12" SE. INV. 835.85  |

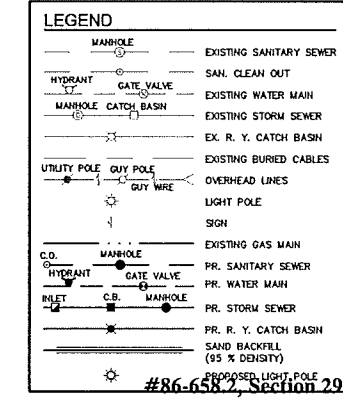
| ESTIMATED QUANTITIES           |          |       |
|--------------------------------|----------|-------|
| STORM SEWER                    |          |       |
| DESCRIPTION                    | QUANTITY | UNITS |
| 12" N-12, HOPE                 | 244      | L.F.  |
| 6" SCH 40, PVC                 | 104      | L.F.  |
| 3' DIA. CATCH BASIN W/ 2' SUMP | 3        | EA.   |
| 4' DIA. CATCH BASIN W/ 2' SUMP | 1        | EA.   |
| 6" STORM CLEANOUT              | 2        | EA.   |

**SHEET**  
Utility Plan  
Not to be used for  
construction drawings



**REVISIONS**  
00-00-00

**DRAWN BY:**  
J. Johnson  
**DESIGNED BY:**  
J. Johnson  
**APPROVED BY:**  
J. Johnson  
**DATE:**  
02-25-2015  
**SCALE:** 1" = 20'  
#86-658.2, Section 29  
**NFE JOB NO.** A703-02  
**SHEET NO.** C5



PUBLICLY DEDICATED  
**AUBURN ROAD (120' WIDE)**  
ASPHALT PAVEMENT

Project: 2960 bond street  
Date: 2-20-14

**SANITARY SEWER BASIS OF DESIGN**

SQUARE FOOTAGE 32677 S.F.  
0.5 R.E.U. PER 1000 S.F. 16.3 REU  
NOTE: 1 R.E.U. EQUALS 100 G.P.D. 16 TOTAL REU

AVE Q. =  $\frac{(100 \text{ G.P.C.P.D.} \cdot \text{NO PEOPLE})}{(86,400 \text{ SEC/DAY} \cdot 7.48 \text{ GAL/C.F.})} = 0.002 \text{ cfs.}$

Peaking Factor  $\frac{100(18 + P^{.5})(4+P^{.5})}{(P \cdot \text{POP. IN THOUSANDS}) \text{ USE}} = 4.39$   
USE = 4

PEAK Q. =  $\frac{(\text{G.P.C.P.D.} \cdot \text{NO PEOPLE})}{(86,400 \text{ SEC/DAY} \cdot 7.48 \text{ GAL/C.F.})} = 0.010 \text{ cfs.}$

| Determine Site Runoff Coefficient - Area Before:      |                     |                |              |
|---|---------------------|----------------|--------------|
| Proposed Land Use:                                    | Runoff Coefficient: | Drainage Area: |              |
| Pavement  | 0.90                | 0.890          | Acres        |
| Building  | 0.90                | 0.548          | Acres        |
| Landscape / Open Space:                               | 0.20                | 0.174          | Acres        |
| Detention Basin                                       | 1.00                | 0.000          | Acres        |
| <b>Total Acreage:</b>                                 |                     | <b>1.612</b>   | <b>Acres</b> |
| <b>Weighted Runoff Coefficient "C" Factor = 0.824</b> |                     |                |              |

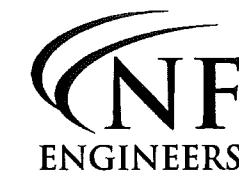
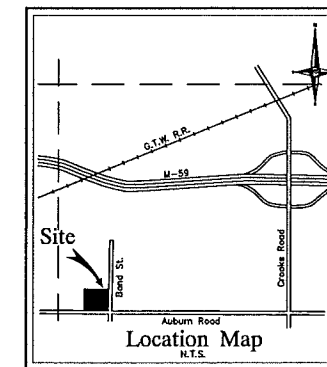
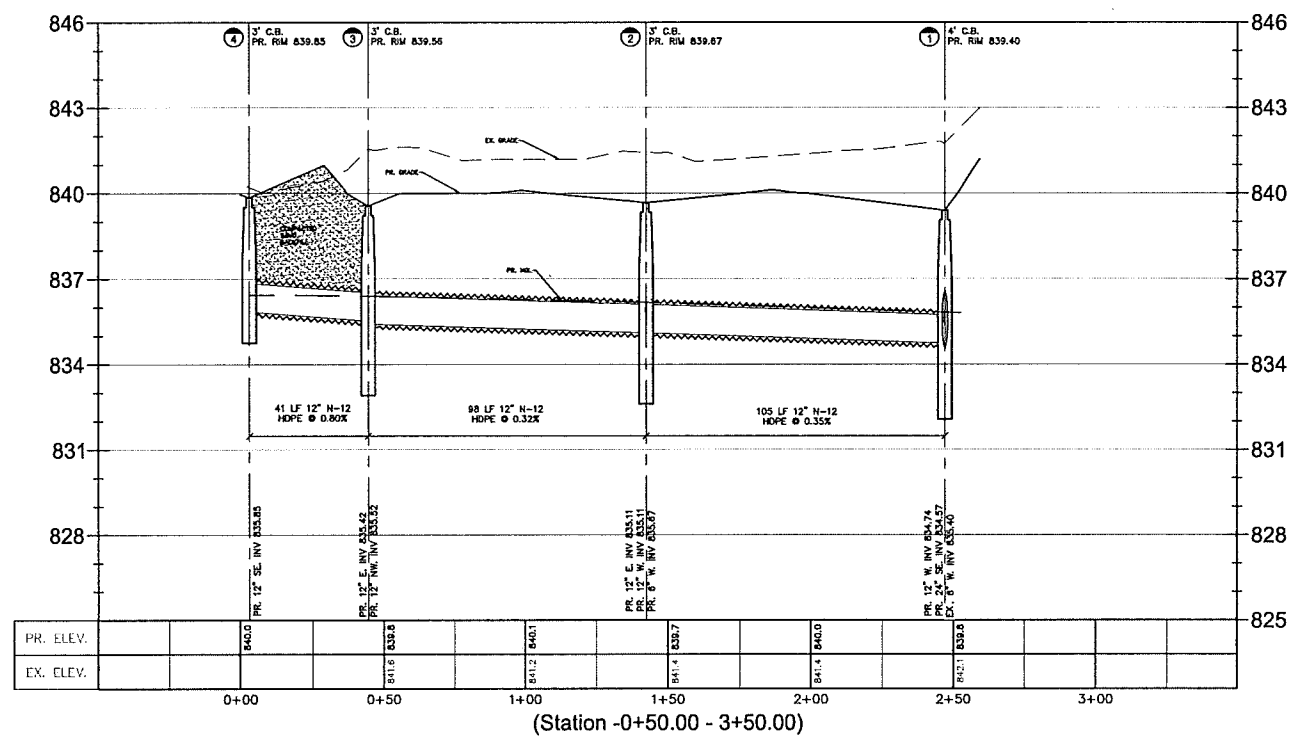
| Determine Site Runoff Coefficient - Area After:       |                     |                |              |
|---|---------------------|----------------|--------------|
| Proposed Land Use:                                    | Runoff Coefficient: | Drainage Area: |              |
| Pavement  | 0.90                | 0.716          | Acres        |
| Building  | 0.90                | 0.750          | Acres        |
| Landscape / Open Space:                               | 0.20                | 0.706          | Acres        |
| Detention Basin                                       | 1.00                | 0.000          | Acres        |
| <b>Total Acreage:</b>                                 |                     | <b>2.172</b>   | <b>Acres</b> |
| <b>Weighted Runoff Coefficient "C" Factor = 0.672</b> |                     |                |              |

| 2960 Bond Street Storm Sewer Calculations |        |                       |                          |                       |                      |                                 |                                |                        |                    |                |                    |                        |                        |                          |
|---|--------|-----------------------|--------------------------|-----------------------|----------------------|---------------------------------|--------------------------------|------------------------|--------------------|----------------|--------------------|------------------------|------------------------|--------------------------|
| From No.                                  | To No. | Drainage Area (Acres) | Drainage Coefficient (C) | Equivalent Area (C*A) | Total Area (Sum C*A) | Time of Concentration (Minutes) | Reinfall Intensity (Inches/Hr) | Actual Discharge (CFS) | Pipe Size (Inches) | Pipe Slope (%) | Pipe Length (Feet) | Flow Velocity (Ft/Sec) | Time of Flow (Minutes) | Full Pipe Capacity (CFS) |
| 4   | 3      | A                     | 0.14                     | 0.94                  | 0.132                | 15.00                           | 4.350                          | 0.572                  | 12                 | 0.80           | 41                 | 4.057                  | 0.17                   | 319                      |
| 3   | 2      | B                     | 0.27                     | 0.92                  | 0.248                | 0.380                           | 15.17                          | 4.329                  | 12                 | 0.32           | 98                 | 2.566                  | 0.64                   | 202                      |
| 2   | 1      | C                     | 0.12                     | 0.92                  | 0.110                | 0.490                           | 15.80                          | 4.252                  | 12                 | 0.35           | 105                | 2.684                  | 0.65                   | 211                      |
| 1   | 5      | D                     | 0.37                     | 0.92                  | 0.340                | 0.831                           | 16.46                          | 4.175                  | 16                 | 0.20           | 9                  | 2.658                  | 0.06                   | 470                      |

Project No. A703-02  
Project Name: 2960 Bond Street  
Location: Rochester Hills  
Date: February 19, 2015  
Revised: February 19, 2015

| From No. | To No. | Drainage Area (Acres) | Drainage Coefficient (C) | Equivalent Area (C*A) | Total Area (Sum C*A) | Time of Concentration (Minutes) | Reinfall Intensity (Inches/Hr) | Actual Discharge (CFS) | Pipe Size (Inches) | Pipe Slope (%) | Pipe Length (Feet) | Flow Velocity (Ft/Sec) | Time of Flow (Minutes) | Full Pipe Capacity (CFS) | H. G. Elev. Upper End (Feet) | H. G. Elev. Lower End (Feet) | H. G. Slope (%) | Theoretical Velocity (Ft/Sec) | Ground Elevation (Feet) | Change in Elevation (Feet) | Invert Elev. Upper End (Feet) | Invert Elev. Lower End (Feet) | Upper Rim HGL (Feet) |
|----------|--------|-----------------------|--------------------------|-----------------------|----------------------|---------------------------------|--------------------------------|------------------------|--------------------|----------------|--------------------|------------------------|------------------------|--------------------------|------------------------------|------------------------------|-----------------|-------------------------------|-------------------------|----------------------------|-------------------------------|-------------------------------|----------------------|
| 4        | 3      | A                     | 0.14                     | 0.94                  | 0.132                | 15.00                           | 4.350                          | 0.572                  | 12                 | 0.80           | 41                 | 4.057                  | 0.17                   | 319                      | 836.41                       | 836.40                       | 0.026           | 0.73                          | 839.85                  | 0.33                       | 835.85                        | 835.52                        | 3.44                 |
| 3        | 2      | B                     | 0.27                     | 0.92                  | 0.248                | 0.380                           | 15.17                          | 4.329                  | 12                 | 0.32           | 98                 | 2.566                  | 0.64                   | 202                      | 836.40                       | 836.19                       | 0.213           | 2.09                          | 839.52                  | 0.31                       | 835.42                        | 835.11                        | 3.12                 |
| 2        | 1      | C                     | 0.12                     | 0.92                  | 0.110                | 0.490                           | 15.80                          | 4.252                  | 12                 | 0.35           | 105                | 2.684                  | 0.65                   | 211                      | 836.19                       | 835.83                       | 0.342           | 2.65                          | 839.52                  | 0.37                       | 835.11                        | 834.74                        | 3.33                 |
| 1        | 5      | D                     | 0.37                     | 0.92                  | 0.340                | 0.831                           | 16.46                          | 4.175                  | 16                 | 0.20           | 9                  | 2.658                  | 0.06                   | 470                      | 835.83                       | 835.82                       | 0.109           | 1.96                          | 839.40                  | 0.02                       | 834.64                        | 834.62                        | 3.57                 |

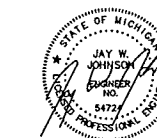




CIVIL ENGINEERS  
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46777 WOODWARD AVE.  
PONTIAC, MI 48342-5032  
TEL. (248) 332-7931  
FAX. (248) 332-8257

SEAL



PROJECT

2960 Bond Street  
Building Addition

CLIENT

Engineering Design  
Services, Inc  
2960 Bond Street  
Rochester Hills, MI 48309

Contact: Rock Haas  
Phone: (248) 299-9440

PROJECT LOCATION

Part of the SW 1/4  
of Section 29  
T.3N., R. 11E.  
Pt. of "Avon Tech Park Sub."  
City of Rochester Hills,  
Oakland County, Michigan

SHEET

Profiles  
Not to be used for  
construction drawings



Know what's below  
Call before you dig.

REVISIONS

00-00-00

DRAWN BY:

J. Johnson

DESIGNED BY:

J. Johnson

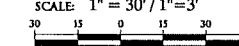
APPROVED BY:

J. Johnson

DATE:

02-25-2015

SCALE: 1" = 30' / 1" = 3'



NFE JOB NO.

A703-02

SHEET NO.

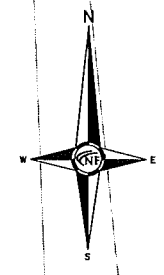
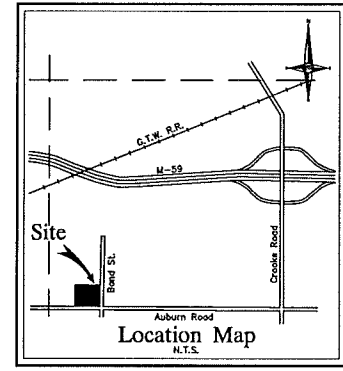
C6

#86-658.2, Section 29

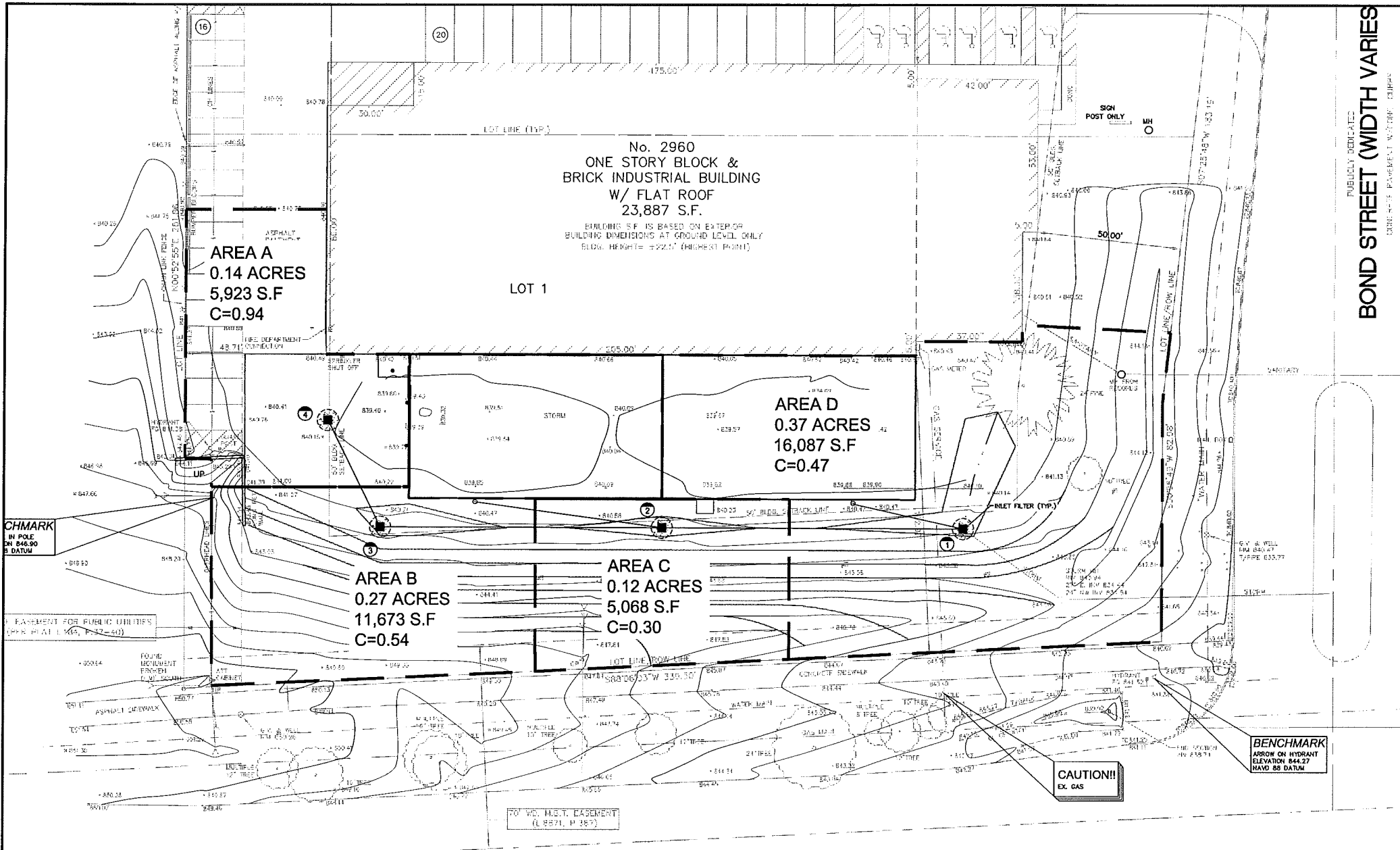


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LAND PLANNERS**

**NOWAK & FRAUS ENGINEERS**  
4677 WOODWARD AVE.  
PONTIAC, MI 48342-5032  
TEL. (248) 332-7931  
FAX. (248) 332-8257



**BOND STREET WIDTH VARIES**  
PUBLICLY DEDICATED  
CONCRETE PAVEMENT WITH 10' SIDEWALKS



No. 2960  
**ONE STORY BLOCK &  
BRICK INDUSTRIAL BUILDING  
W/ FLAT ROOF  
23,887 S.F.**  
BUILDINGS S.F. IS BASED ON EXTERIOR  
BUILDING DIMENSIONS AT GROUND LEVEL ONLY  
BLDG. HEIGHT IS 22.07' (HIGHEST POINT)

**AREA A  
0.14 ACRES  
5,923 S.F  
C=0.94**

LOT 1

**AREA D  
0.37 ACRES  
16,087 S.F  
C=0.47**

**AREA B  
0.27 ACRES  
11,673 S.F  
C=0.54**

**AREA C  
0.12 ACRES  
5,068 S.F  
C=0.30**

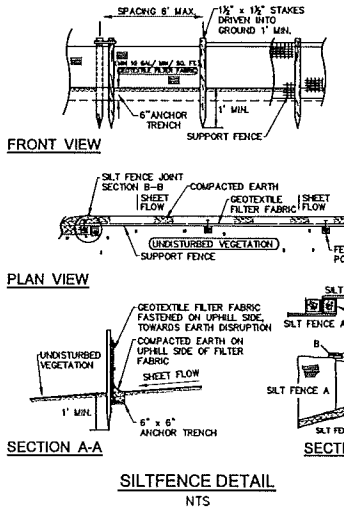
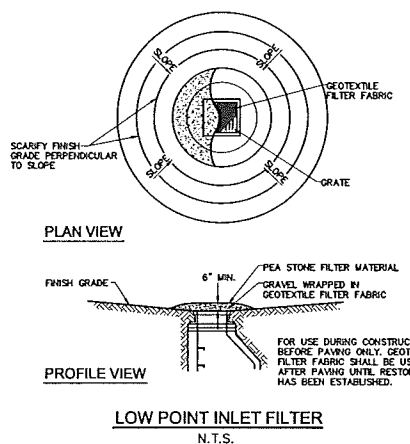
**BENCHMARK**  
IN POLE  
ON 846.90  
D DATUM

**BENCHMARK**  
ARROW ON HYDRANT  
ELEVATION 844.27  
NAVD 88 DATUM

**CAUTION!!**  
EX. GAS

**AUBURN ROAD ( 120' WIDE )**  
PUBLICLY DEDICATED  
ASPHALT PAVEMENT

| CONSTRUCTION SEQUENCE / TIMING SCHEDULE                                     |          |
|---|----------|
| 1. INSTALL PERIMETER FILTER FABRIC FENCING AND STONE FILTER WHERE REQUIRED. | MAY 2015 |
| 2. MASS GRADE SITE.   | MAY 2015 |
| 3. COMMENCE UNDERGROUND UTILITY WORK.                                       | MAY 2015 |
| 4. INSTALL INLET FILTERS ON PROPOSED DRAINAGE STRUCTURES.                   | MAY 2015 |
| 5. FILL IN SEDIMENTATION TRAPS AND PAVE SITE.                               | MAY 2016 |
| 6. COMPLETE ALL BUILDINGS AND LANDSCAPE ACTIVITY.                           | MAY 2016 |
| 7. LET VAC NEW STORM SEWER SYSTEM AS REQUIRED.                              | MAY 2016 |
| 8. REMOVE ALL TEMPORARY SOIL EROSION MEASURES.                              | MAY 2016 |



**NOTES**

- A DISTANCE OF 600' NW TO THE NEAREST BODY OF WATER
- THE TOTAL AREA OF EARTH DISRUPTION IS 0.75 ACRES.
- THE SOIL EROSION CONTROLS WILL BE MAINTAINED WEEKLY AND AFTER EVERY STORM EVENT BY THE CONTRACTOR
- A SOIL EROSION PERMIT IS REQUIRED FROM THE OAKLAND COUNTY.

**SOIL DATA**

THIS SITE CONSISTS OF:  
15B-SPRINK LOAMY SAND, 0 TO 6 PERCENT SLOPES  
18B-FOX SANDY LOAM, 1 TO 6 PERCENT SLOPES  
44B-RIDGLES SANDY LOAM, 1 TO 6 PERCENT SLOPES  
BASED ON DATA PROVIDED BY THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE.

**ESTIMATED QUANTITIES**

| DESCRIPTION  | QUANTITY | UNITS |
|--------------|----------|-------|
| INLET FILTER | 4        | EA.   |

**LEGEND**

- INDICATES LIMITS OF SILT FENCE
- INDICATES LIMITS OF DRAINAGE DISTRICT AREA
- INDICATES LIMITS OF SOIL DISRUPTION
- INDICATES LOW POINT INLET FILTER OR PROPOSED DRAINAGE STRUCTURE
- INDICATES SILT SACK OR EQUAL ON EXISTING DRAINAGE STRUCTURE
- INDICATES DRAINAGE DISTRICT AREA

SEAL



**PROJECT**  
2960 Bond Street  
Building Addition

**CLIENT**  
Engineering Design  
Services, Inc  
2960 Bond Street  
Rochester Hills, MI 48309

**Contact: Rock Haas**  
Phone: (248) 299-9440

**PROJECT LOCATION**  
Part of the SW 1/4  
of Section 29  
T.3N., R. 11E.  
Pt. of "Avon Tech Park Sub."  
City of Rochester Hills,  
Oakland County, Michigan

**SHEET** Soil Erosion /  
Drainage Area Plan  
Not to be used for  
construction drawings



Know what's below  
Call before you dig.

REVISIONS

| NO.      | DESCRIPTION |
|----------|-------------|
| 00-00-00 |             |

DRAWN BY:

J. Johnson

DESIGNED BY:

J. Johnson

APPROVED BY:

J. Johnson

DATE:

02-25-2015

SCALE: 1" = 20'



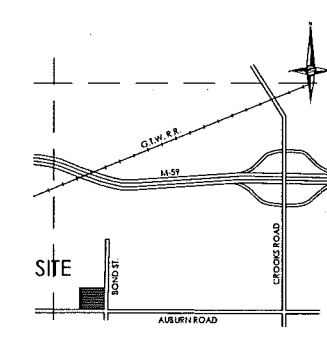
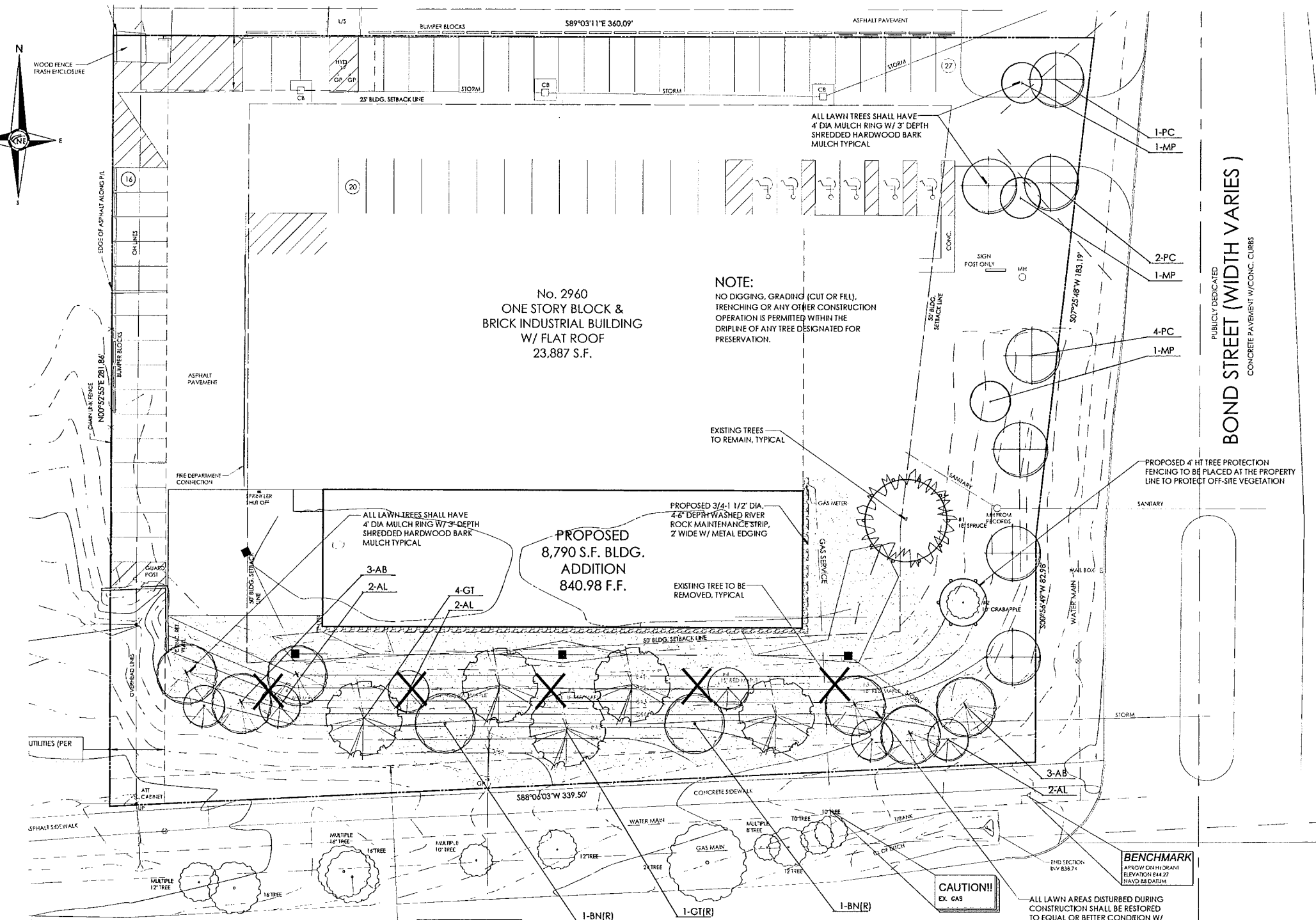
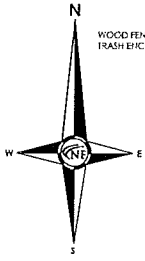
NFE JOB NO.

A703-02

SHEET NO.

C7

#86-658.2, Section 29



LOCATION MAP  
N.T.S.

**LANDSCAPE REQUIREMENTS**  
 EXISTING SITE ZONING: REC-W, INDUSTRIAL DISTRICT  
 EXISTING SITE AREA: 94,642.93 S.F. OR 2.17 ACRES

**BUFFER REQUIREMENTS**  
 NO BUFFER REQUIRED DUE TO SIMILAR ADJACENT ZONING CLASSIFICATION

**PARKING LOT LANDSCAPE REQUIREMENTS**  
 NO ADDITIONAL PARKING IS REQUIRED OR PROPOSED ACCORDING TO THE PARKING CALCULATIONS ON SHEET C1

**RIGHT-OF-WAY REQUIREMENTS**  
 1 CANOPY TREE PER 35 L.F. ADJACENT TO A PUBLIC R.O.W.  
 1 ORNAMENTAL TREE PER 60 L.F. ADJACENT TO PUBLIC R.O.W.  
 AUBURN ROAD: 340 L.F.  
 CANOPY TREES: 340 / 35 L.F. = 10 CANOPY TREES  
 ORNAMENTAL TREES: 340 L.F. / 60 L.F. = 6 ORNAMENTAL TREES  
 BOND STREET: 266 L.F.  
 CANOPY TREES: 266 L.F. / 35 L.F. = 8 CANOPY TREES  
 ORNAMENTAL TREES: 266 L.F. / 60 L.F. = 4 ORNAMENTAL TREES

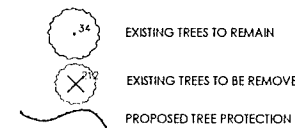
**TREE PRESERVATION SUMMARY**  
 TREES ≥ 2" DBH SHALL BE REPLACED AT 1:1

2" CAL. DECIDUOUS = 1 CREDIT  
 2" CAL. DECIDUOUS = 1.5 CREDIT  
 3" CAL. DECIDUOUS = 2 CREDITS  
 8" HT. EVERGREEN = 1 CREDIT  
 10" HT. EVERGREEN = 2 CREDITS

TOTAL TREES SURVEYED ON-SITE: 7  
 TOTAL DEAD TREES ON-SITE: 0  
 TOTAL NET REGULATED TREES: 7  
 TOTAL TREES TO BE SAVED: 2  
 TOTAL TREES TO BE REMOVED: 5  
 TOTAL REPLACEMENT CREDITS REQUIRED: 5  
 TOTAL REPLACEMENT CREDITS PROVIDED: 5

**NOTE:**  
 NO DIGGING, GRADING (CUT OR FILL), TRENCHING OR ANY OTHER CONSTRUCTION OPERATION IS PERMITTED WITHIN THE DRIPLINE OF ANY TREE DESIGNATED FOR PRESERVATION.

**TREE PROTECTION LEGEND**



**CITY OF ROCHESTER HILLS NOTES**

1. PRIOR TO THE BEGAINING OF THE FIRM OR ANY OTHER WORK, THE CITY OF ROCHESTER HILLS LANDSCAPE ARCHITECT MUST NOTIFY THE CITY OF ROCHESTER HILLS AND THE CITY ENGINEER OF THE LOCATION AND NUMBER OF ALL TREES TO BE REMOVED OR PRESERVED. ALL TREES TO BE REMOVED MUST BE REPLACED AT A RATIO OF 1:1. ALL TREES TO BE PRESERVED MUST BE PROTECTED BY A TREE PROTECTION FENCING SYSTEM AS SPECIFIED IN THIS PLAN. THE CITY OF ROCHESTER HILLS LANDSCAPE ARCHITECT SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL TREES TO BE PRESERVED.
2. ALL TREES AND SHRUBS MUST BE PLANTED AT LEAST 10 FEET FROM THE EDGE OF A PUBLIC RIGHT-OF-WAY. ALL TREES AND SHRUBS MUST BE PLANTED AT LEAST 10 FEET FROM THE EDGE OF A PUBLIC RIGHT-OF-WAY. ALL TREES AND SHRUBS MUST BE PLANTED AT LEAST 10 FEET FROM THE EDGE OF A PUBLIC RIGHT-OF-WAY.
3. ALL TREES AND SHRUBS MUST BE PLANTED WITHIN THE TRIANGULAR AREA CREATED AT THE INTERSECTION OF ANY STREET OR AN ALLIANCE OF 25 FEET FROM THE CORNER OF A STREET. NO TREE OR SHRUB MAY BE PLANTED IN THE TRIANGULAR AREA CORNER AT THE INTERSECTION OF ANY STREET OR AN ALLIANCE OF 25 FEET FROM THE CORNER OF A STREET.
4. EACH APPROVAL IS REQUIRED TO SHOWN AND THE CITY ENGINEER SHALL BE NOTIFIED OF ANY CHANGES TO THE LOCATION OF ANY TREE OR SHRUBS WITHIN THE PUBLIC RIGHT-OF-WAY.
5. NO DISTURBANCE OF ANY TREE OR SHRUB SHALL BE ALLOWED WITHOUT THE WRITTEN APPROVAL OF THE CITY OF ROCHESTER HILLS LANDSCAPE ARCHITECT.
6. THE CITY ENGINEER AND THE CITY OF ROCHESTER HILLS LANDSCAPE ARCHITECT SHALL HAVE THE RIGHT TO STOP ANY WORK AT ANY TIME IF THE CITY ENGINEER OR THE CITY OF ROCHESTER HILLS LANDSCAPE ARCHITECT DETERMINES THAT THE WORK IS BEING DONE IN VIOLATION OF THE CITY OF ROCHESTER HILLS LANDSCAPE ARCHITECT'S REQUIREMENTS.
7. REPLACEMENT TREES MUST BE PLANTED WITHIN THE DRIP LINE OF EXISTING TREES.
8. TREE PROTECTION FENCING SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.

**IRRIGATION NOTE:**  
 THE IRRIGATION PLAN WILL BE SUBMITTED AS A PART OF CONSTRUCTION PLAN REVIEW. ALL LANDSCAPE AREAS WILL BE IRRIGATED IN CONFORMANCE WITH THE CITY OF ROCHESTER HILLS REQUIREMENTS. WATERING WILL ONLY OCCUR BETWEEN THE HOURS OF 12 AM AND 5 AM.

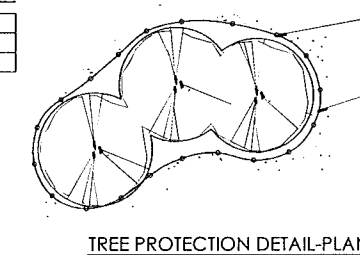
**MASTER PLANT SCHEDULE**

**RIGHT-OF-WAY TREES**

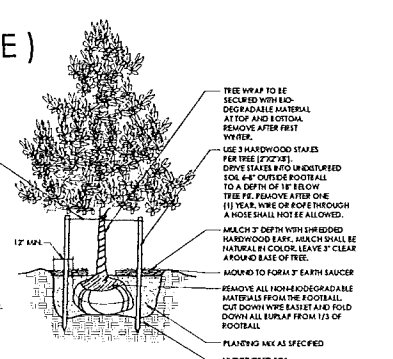
| KEY           | QTY | BOTANICAL/COMMON NAME | SIZE     | FOOT | COMMENT            | UNIT/ TOTAL COST |
|---------------|-----|-----------------------|----------|------|--------------------|------------------|
| AB            | 4   | Aspen Norway Spruce   | 2.5" CAL | 8.8  | FULL MATCHED HEADS | \$225/ \$1,450   |
| AL            | 4   | American Red Maple    | 4" CAL   | 8.8  | CLUMP FORM         | \$275/ \$1,450   |
| GT            | 4   | Greenleaf Yucca       | 2.5" CAL | 8.8  | FULL MATCHED HEADS | \$145/ \$1,700   |
| MP            | 3   | Male Palm             | 7" CAL   | 8.8  | FULL MATCHED HEADS | \$275/ \$825     |
| FC            | 7   | Flowering Crabapple   | 2.5" CAL | 8.8  | FULL MATCHED HEADS | \$135/ \$945     |
| R.O.W. TOTAL: |     |                       |          |      |                    | \$8,400.00       |

**REPLACEMENT TREES (R)**

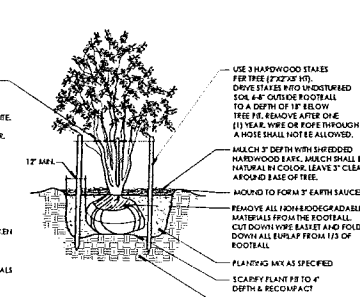
| KEY                | QTY | BOTANICAL/COMMON NAME | SIZE    | FOOT | COMMENT            | UNIT/ TOTAL COST |
|--------------------|-----|-----------------------|---------|------|--------------------|------------------|
| EN                 | 2   | Emerald Green Elm     | 12" CAL | 8.8  | CLUMP FORM         | \$350/ \$700     |
| GT                 | 1   | Greenleaf Yucca       | 3" CAL  | 8.8  | FULL MATCHED HEADS | \$145/ \$145     |
| REPLACEMENT TOTAL: |     |                       |         |      |                    | \$1,125.00       |



TREE PROTECTION DETAIL-PLAN  
N.T.S.



DECIDUOUS TREE PLANTING DETAIL  
N.T.S.

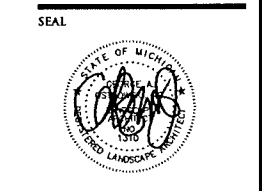


MULTI-STEM TREE PLANTING DETAIL  
N.T.S.

**AUBURN ROAD ( 120' WIDE )**  
 PUBLICLY DEDICATED  
 ASPHALT PAVEMENT

**CF ENGINEERS**  
 CIVIL ENGINEERS  
 LAND SURVEYORS  
 LAND PLANNERS

NOWAK & FRAUS ENGINEERS  
 46777 WOODWARD AVE.  
 PONTIAC, MI 48342-5032  
 TEL. (248) 332-7931  
 FAX. (248) 332-8257



**PROJECT**  
 2960 Bond Street  
 Building Addition

**CLIENT**  
 Engineering Design  
 Services, Inc  
 2960 Bond Street  
 Rochester Hills, MI 48309

Contact: Rock Haas  
 Phone: (248) 299-9440

**PROJECT LOCATION**  
 Part of the SW 1/4  
 of Section 29  
 T.3N., R. 11E.  
 City of "Avon Tech Park Sub."  
 City of Rochester Hills,  
 Oakland County, Michigan

**SHEET**  
 Landscape Plan



REVISIONS

**DRAWN BY:**  
 G. Ostrowski

**DESIGNED BY:**  
 G. Ostrowski

**APPROVED BY:**  
 G. Ostrowski

**DATE:**  
 02-25-2015

**SCALE:** 1" = 20'

NFE JOB NO. SHEET NO.  
 A703-02 L1