

**WETLAND SEED INSTALLATION**

**Description of Work:**  
Extent of wetland seeding shall be confined to the wetland fringe area as shown on the plan drawing. Seeding will be completed between October 1 (fall) to March 15 (late winter). Surrounding upland soils shall be stabilized prior to wetland seeding in order to ensure that they cannot erode into the wetland area.

**Wetland Seed Installation:**

- The soil surface shall be scarified by shallow tilling or raking.
- Seed shall be hand sown at application rates recommended by the nursery seed supplier.
- Seed shall be pressed firmly into the soil using a roller. Very light raking is an acceptable alternative but seed should not be covered more than 1/2" by soil.
- Irrigation, as necessary, will be provided until the seed germinates and wetland vegetation is well established.

**Wetland Seed Mix:**

Wetland seed mixes shall be purchased from the J.F. New company or a comparable reputable supplier. The following seed mixes will be utilized:

- Emergent Wetland Seed Mix - This mix will be sown in saturated soil areas and will consist of at least 70% native permanent grass, sedge and/or rush species and at least 13% of 16 native forb species. The plants that are included in this mix have the ability to spread into water depths up to 12" and also to thrive in soils that are saturated for long duration.
- Swale Seed Mix - This mix will include at least 70% native permanent grass and sedge species and 10% of 13 native forb species. This mix will be sown within the entire wetland fringe. The plants in this mix tolerate short term saturation and inundation.

**WET MITIGATION AREA CONSTRUCTION SPECIFICATIONS**

**EARTHWORK**

Earthwork to be done in conjunction with work undertaken by adjacent property owners.

**Description of Work:**

Extent of earthwork is within the detention pond work areas shown on the plan drawing. The earthwork will proceed as follows:

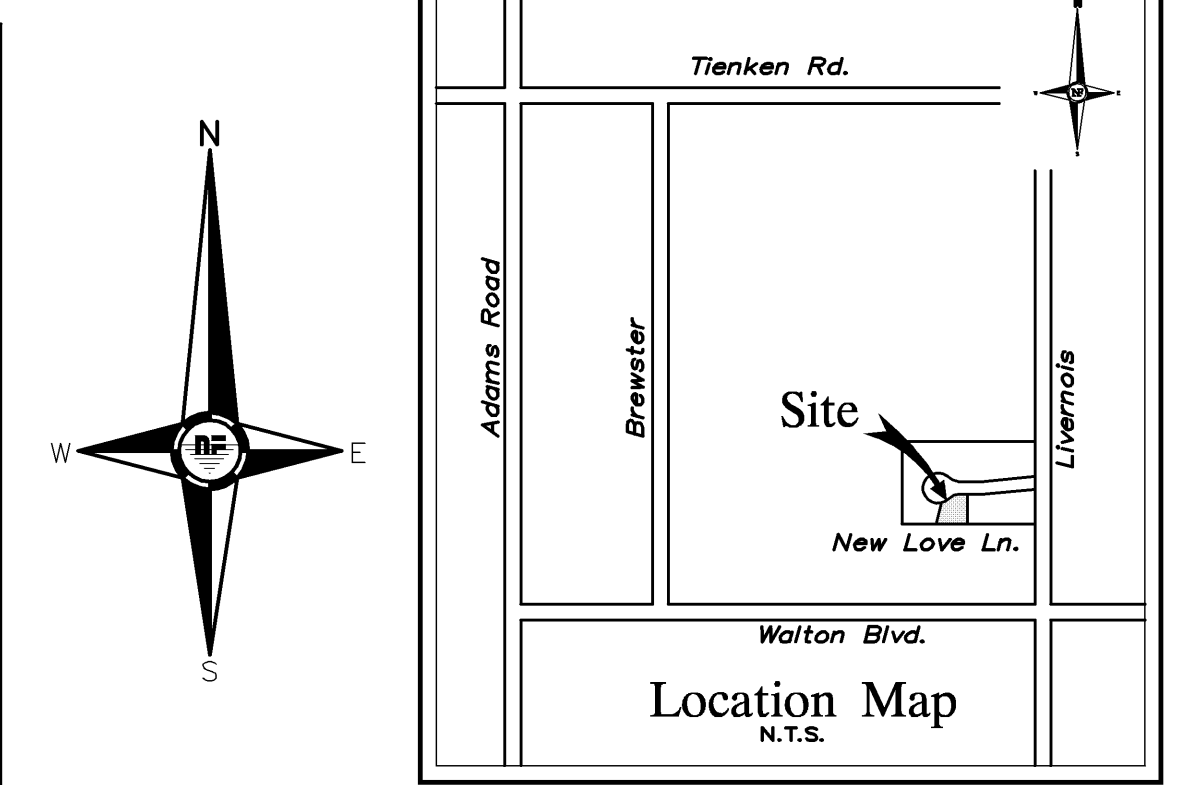
- Install proper soil erosion control measures.
- Construct mitigation area to the size, shape and elevations shown on the plans. Over-excavate the draw down zone together with the long term saturation zone by 6".
- Backfill the draw down zone and the long term saturation zone with 6" of wetland soils. Wetland soil to be installed to finish grade elevations as indicated on the plans with as little work as possible taking care to avoid overcompaction. Soils should be firm in place, however, in order to avoid any settling.
- Upon completion of finish grade construction, grade stakes shall be installed at 25' intervals showing grade elevations to define the following lines:
  - Bottom elevation of the wetland planting shelf defined by the ordinary low water mark.
  - Top elevation of the wetland planting shelf defined by the ordinary high water mark.
  - Top elevation of the long term saturation zone. The long term saturation zone is defined by a line that is 2" in elevation higher (above) the ordinary high water mark.

Constructed grades & elevations within the draw down zone and perimeter long term saturation zone are critical.

Project Engineer and Wetland Specialist must approve finish surfaces, grades, topsoil placement and depth prior to proceeding with planting and seeding. Any unsatisfactory work will be corrected prior to planting and seeding.

**SEED NOTE:**  
All lawn areas designated to be seeded, shall be hydroseeded with species normally grown in Oakland County, in areas subject to erosion lawn shall be sodded & staked until established. All seed shall be applied over 3" prepared topsoil, and shall be kept moist and watered daily until established.

**SOD NOTE:**  
All lawn areas designated to be sodded, shall be sodded with a species normally grown in Oakland County. All sod shall be placed on 3" prepared topsoil, and watered daily until established.



**NF**

**NOWAK & FRAUS**

Consulting Engineers  
Land Surveyors  
Land Planners

46777 Woodward Avenue  
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Tel. (248) 332-7931  
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**BENCHMARKS**

**OFF-SITE BENCHMARKS**

**NEQ 418:** A standard U.S. Corps of Engineers bronze tablet stamped "760.166 D 32 1936" at Rochester, Oakland County, at the Northwest Corner of the Intersection of Main and Fourth Streets, at the First National Bank, at the Northeast corner of the building, in the concrete ledge at the base of the window, and 3.4 feet above the sidewalk. Elevation 759.73

**NEQ 396:** A standard U.S. Corps of Engineers bronze tablet stamped "B 107 1934" at Rochester, Oakland County, 147 yards East of the Southeast corner of the Grand Trunk Western Railway Station, in the top of an old concrete bridge seat, 1 foot East of the West end, 7 feet South of the South rail. Elevation 728.42

**ON-SITE BENCHMARKS:**

Arrow on Fire Hydrant located on the North side of New Love Lane across from the Northwest corner of lot 20. N.A.V.D. 88 Datum 806.54

Arrow on Fire Hydrant located on the North side of New Love Lane across from the Northeast corner of lot 21. N.A.V.D. 88 Datum 807.10

**ALL ELEVATIONS ARE BASED ON FEMA N.A.V.D. 88.**

**SITE INFORMATION**

ZONED	R-2 (ONE FAMILY RESIDENTIAL DISTRICT)
TOTAL SITE AREA	39,955 S.F. OR 0.917 ACRES
MIN. YARD SETBACKS	BUILDING
FRONT	40.0 FT.
SIDE (EACH)	15.0 FT.
SIDE (TOTAL)	30.0 FT.
REAR	35.0 FT.
MAX. BLDG. HEIGHT	35 FT. OR 2 STORIES
MIN. LOT AREA	15,000 S.F.
MIN. LOT WIDTH	100.0 FT.
MIN. FLOOR AREA	1,400 S.F.
MAX. LOT COVERAGE	25.0 %

**LEGAL DESCRIPTION (PER CLIENT)**

Part of Lot 18 and all of Lot 19 of "Heartpeace Hills No. 2 - Amended Plot of Lots 18 & 19", a subdivision recorded in Liber 259, Page 26, O.C.R. all of the above being part of the East 1/2 of the Southeast 1/4 of Section 9, Town 3 North, Range 11 East, City of Rochester Hills, Oakland County, Michigan more particularly described as:

Beginning at the Northeast corner of said Lot 19, thence South 89 degrees 57 minutes 04 seconds West 75.08 feet (previously recorded as due West); thence 55.64 feet along a curve to the left (radius of 60.00 feet, included angle 53 degrees 07 minutes 50 seconds, long chord South 53 degrees 23 minutes 45 seconds West 53.66 feet; thence 57.72 feet along a curve to the right (radius of 65.00 feet, included angle 47 degrees 04 minutes 40 seconds, long chord South 62 degrees 16 minutes 15 seconds West 55.84 feet; thence South 01 degrees 53 minutes 29 seconds West 194.42 feet to a point on the south line of said Lot 18, thence North 89 degrees 57 minutes 04 seconds East 179.04 feet (previously recorded as due East 179.16 feet); thence North 00 degrees 01 minutes 46 seconds West 244.25 feet (previously recorded as due North 244.28 feet) to the Point of Beginning.

Said parcel contains 40,358 sq. ft. or 0.928 acres of land.

Sidwell No.: 15-09-427-053

**BEARING REFERENCE**

Bearings are based upon the East line of section 9 being Due South as established in "Heartpeace Hills No. 2" plat recorded in Liber 129, Page 7.

**TOPO NOTES**

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.

All elevations are existing elevations as surveyed in 1992 by Reichert Surveying (survey dated 03-02-92, Job No. 92-012), Buckerfield Engineering (survey dated 03-25-88, Job No. 1-503) and as supplemented by N&F survey data.

This survey may not show all easements of record unless an updated title policy is furnished to the surveyor by the owners.

**FLOODPLAIN NOTES**

Estimated elevations are per FEMA Flood Insurance Rate Maps, Oakland County, Michigan, panel 391 & 392, community panel numbers 26125C0391F & 26125C0392F dated September 29, 2006.

**SOIL EROSION LEGEND**

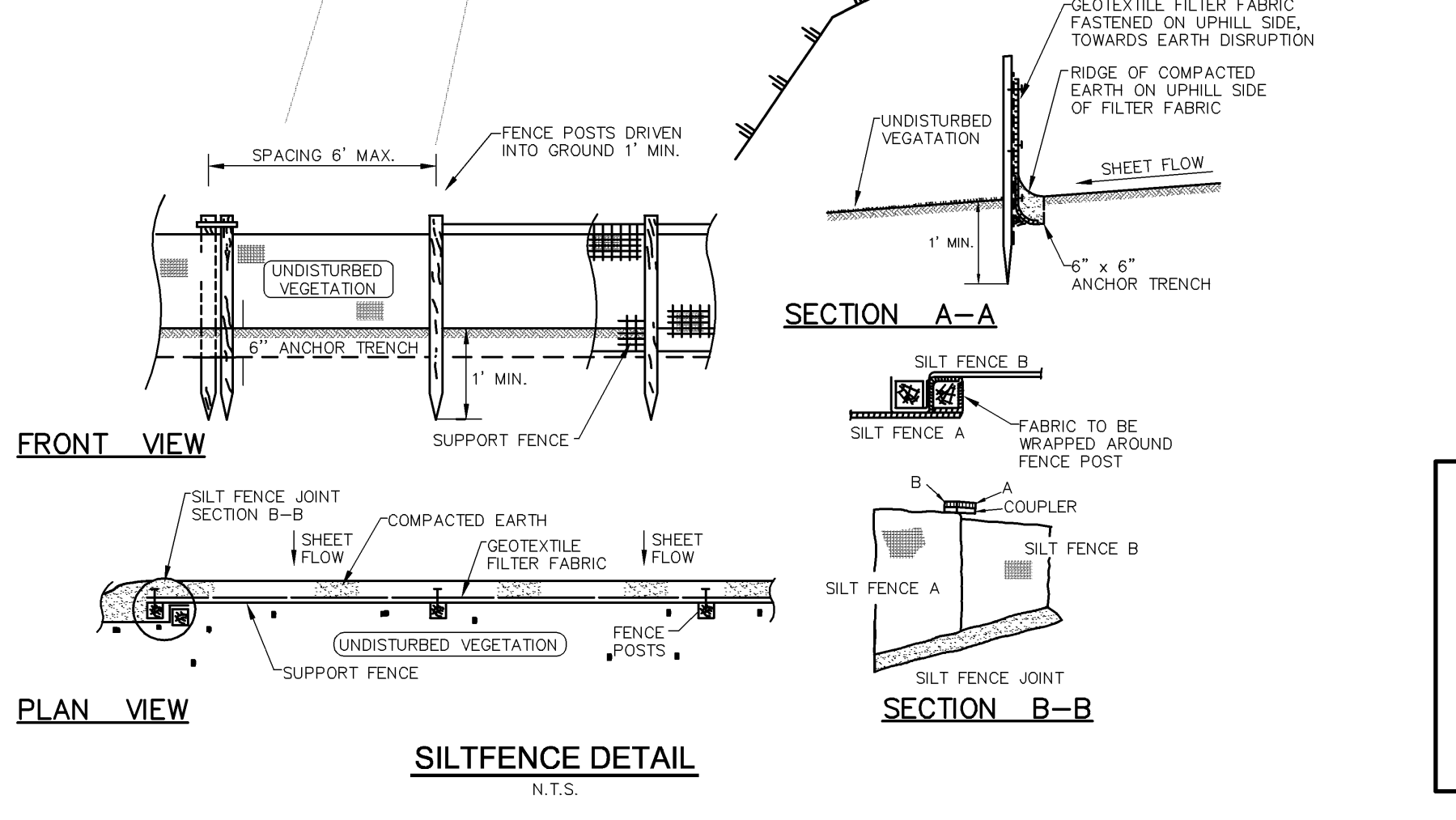
(Symbol)	EXISTING SANITARY SEWER
(Symbol)	EXISTING SAN. CLEAN OUT
(Symbol)	EXISTING WATERMAIN
(Symbol)	EXISTING STORM SEWER
(Symbol)	EX. R. Y. CATCH BASIN
(Symbol)	EXISTING BURIED CABLES
(Symbol)	OVERHEAD LINES
(Symbol)	LIGHT POLE
(Symbol)	SIGN
(Symbol)	EXISTING GAS MAIN

**LEGEND**

(Symbol)	MANHOLE
(Symbol)	GATE VALVE
(Symbol)	MANHOLE CATCH BASIN
(Symbol)	GUY POLE
(Symbol)	GUY WIRE

**SURFACE LEGEND**

(Symbol)	EXISTING WETLAND
(Symbol)	100-YR FLOOD PLAIN AREA PER REICHERT'S SURVEY
(Symbol)	PROPOSED WATER POOL
(Symbol)	PROPOSED WETLAND SEED INSTALLATION



**MISS DIG**

Three full working days before you dig, call the MISS DIG System at: 1-(800)-482-7171

**PROJECT**  
Lot 18b & 19  
Heartpeace Hills No. 2

**CLIENT**  
Ms. Patricia H. Radcliffe  
P.O. Box 80877  
Rochester, MI 48308-0877

**PROJECT LOCATION**  
Part of the S.E. 1/4 of Section 9, T. 3 North, R. 11 East, City of Rochester Hills, Oakland County, Michigan

**DATE/REVISION**

06-20-07	Per Client
06-18-07	Per Client

**SHEET**  
Grading & Mitigation Plan

**DRAWN BY:**  
PK

**DESIGNED BY:**  
PK

**APPROVED BY:**  
J. Huhta

**DATE:**  
06-02-07

**SCALE:**  
1" = 20'

**N/F JOB NO.**  
C735-02

**SHEET NO.**  
1 of 2