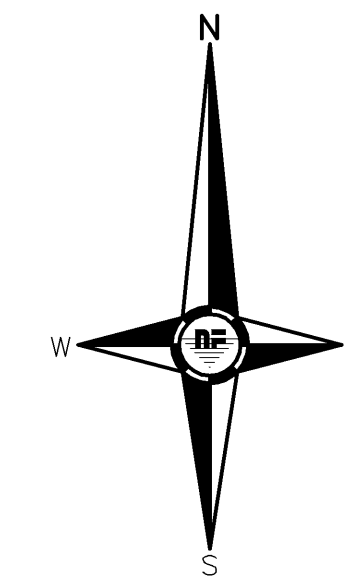
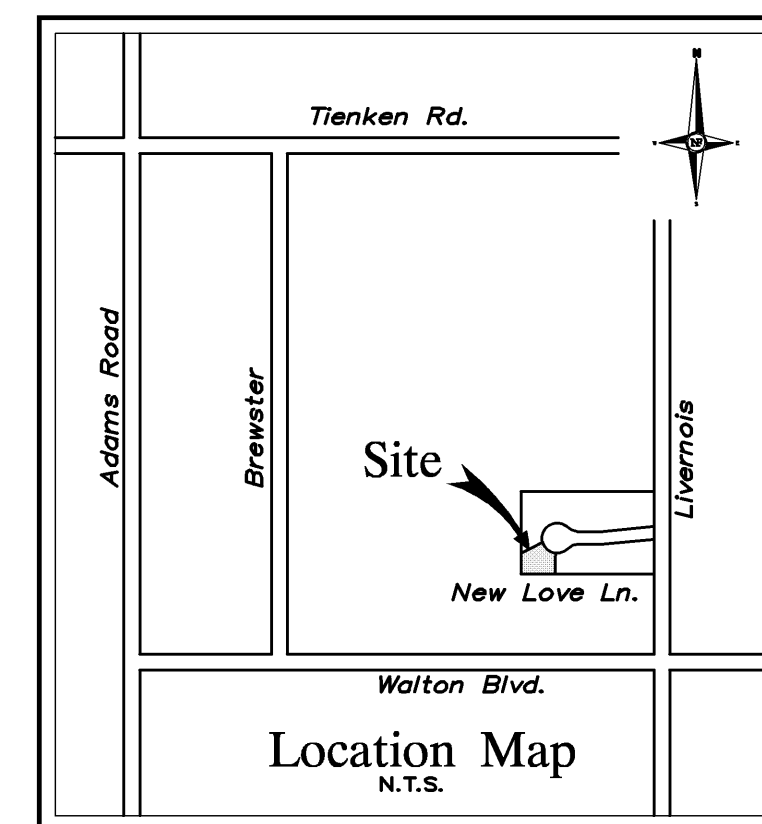




NOWAK & FRAUS

Consulting Engineers
Land Surveyors
Land Planners

46777 Woodward Avenue
Pontiac, Michigan 48342
Tel. (248) 332-7931
Fax. (248) 332-8257



BENCHMARKS

OFF-SITE BENCHMARKS

NEO 418: A standard U.S. Corps of Engineers bronze tablet stamped "760.166 D 32 1936" at Rochester, Oakland County, at the Southwest 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

NEO 398: 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.

FILL BELOW FLOOD PLAIN LIMITS

All of Lot 17 and part of Lot 18

100-yr flood plain elevation 805.40 (NAVD 88)

Cut = 742 yards Fill = 160 yards

Net = 742 - 160 = 582 yards CUT

CUT & FILL ANALYSIS IN THE 100-YEAR FLOOD PLAIN

CALCULATIONS ARE BASED ON PROPOSED SITE GRADING AND PROPOSED MITIGATION CONTAINED ON THE LOT 17 & 18a PARCEL. EXISTING GRADE WAS ESTABLISHED BY HISTORICAL REICHERT'S SURVEY DATED 03-02-92 (JOB NO. 92-012).

100-YEAR FLOOD PLAIN ELEVATION PER FEMA MAP (NAVD 88) 805.40

CUT & FILL IN THE 100-YEAR FLOOD PLAIN AREA BELOW THE FLOOD PLAIN ELEVATION:

PROPOSED CUT FOR LOT 17 & 18a PARCEL 742 CY

PROPOSED FILL FOR LOT 17 & 18a PARCEL 160 CY

TOTAL CUT IN 100-YEAR FLOOD PLAIN FOR LOT 17 & 18a PARCEL 582 CY

PROPOSED EARTHWORK ON LOT 17 & 18a PARCEL GENERATES ADDITIONAL 582 CY OF VOLUME IN THE 100-YEAR FLOOD PLAIN.

THE DEPTH OF CUT & FILL SHOWN ON THE SITE PLAN DRAWING IS REFERENCED TO THE 100-YEAR FLOODPLAIN ELEVATION 805.40 (NAVD 88). FILL ABOVE THIS LEVEL HAS NOT BEEN ACCOUNTED FOR SINCE IT HAS NO RELEVANCE TO THE FLOOD PLAIN STORAGE.

THE MAXIMUM SLOPE OF PROPOSED GRADE WITHIN CUT AND FILL AREAS SHALL NOT EXCEED SLOPE OF 1 VERTICAL ON THREE HORIZONTAL (1:3) OR 33 %

EARTHWORK TO BE DONE IN CONJUNCTION WITH WORK UNDERTAKEN BY ADJACENT PROPERTY OWNERS.

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.

PROJECT
Lot 17 & 18a
Heartpeace Hills No. 2

CLIENT
Mr. Joseph Gruits, AIA
1350 New Love Lane
Rochester Hills, MI 48309

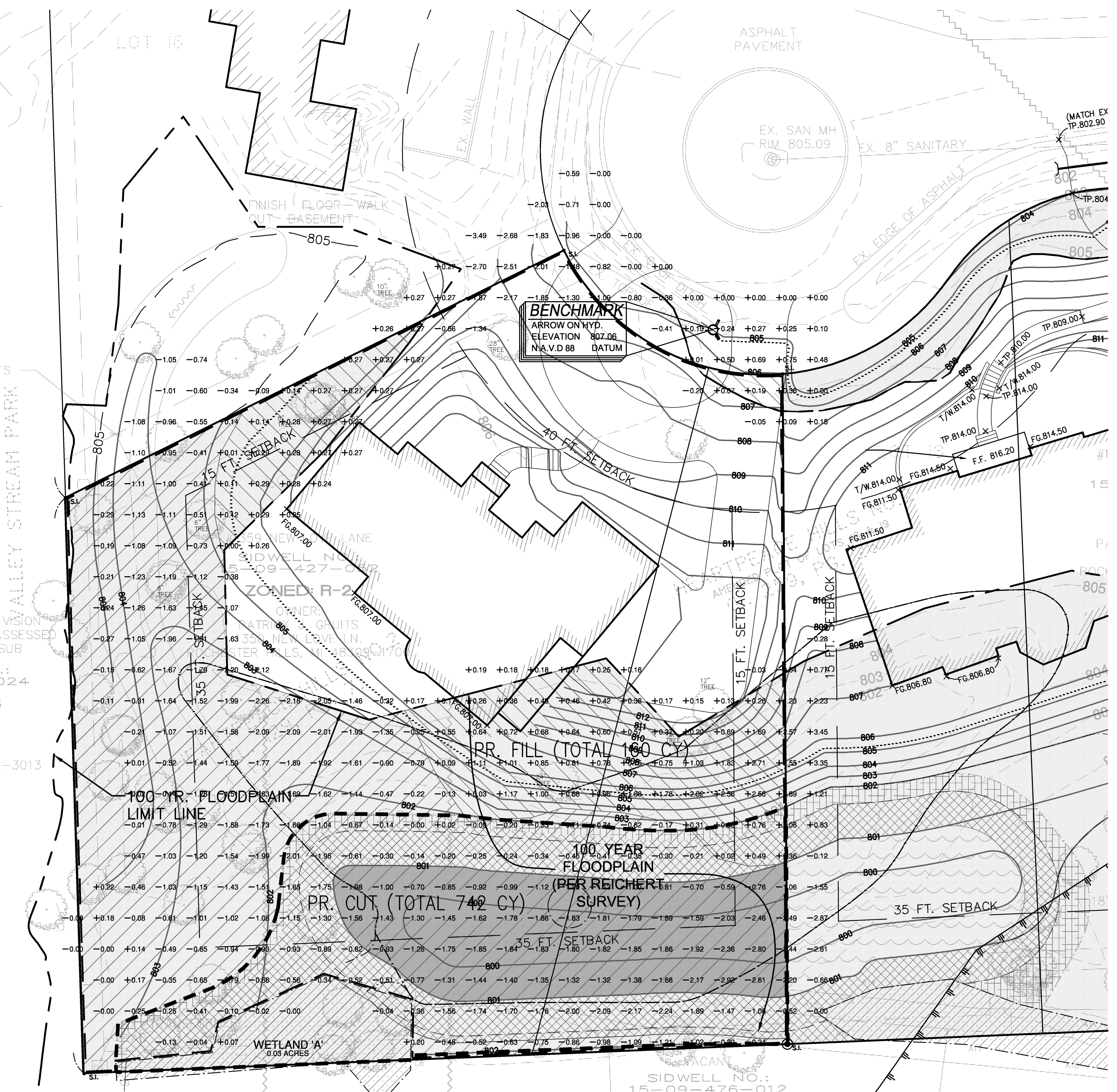
PROJECT LOCATION
Part of the S.E. 1/4 of
Section 9, T. 3 North,
R. 11 East, City of
Rochester Hills, Oakland
County, Michigan

SEAL

DATE/REVISION

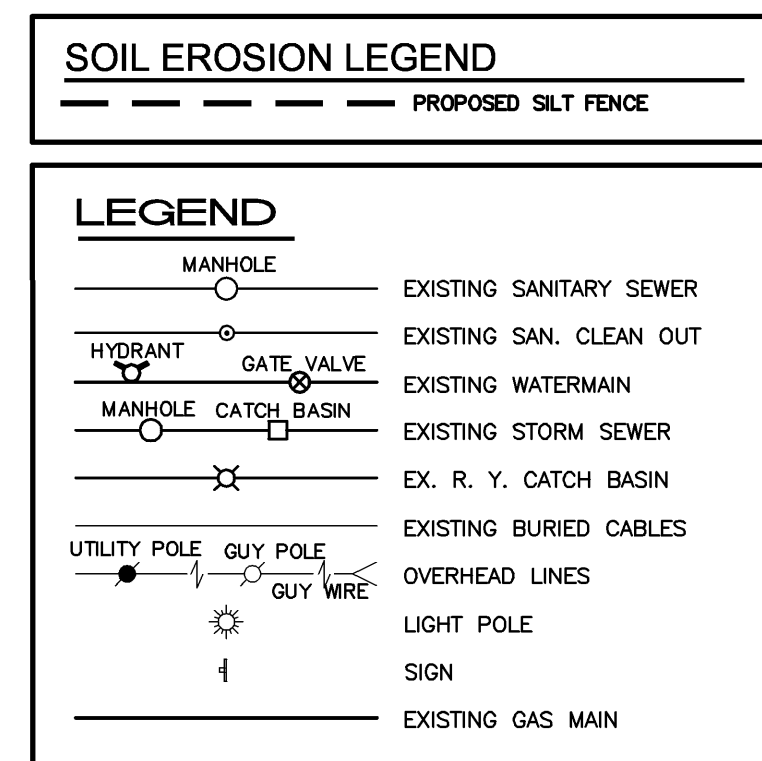
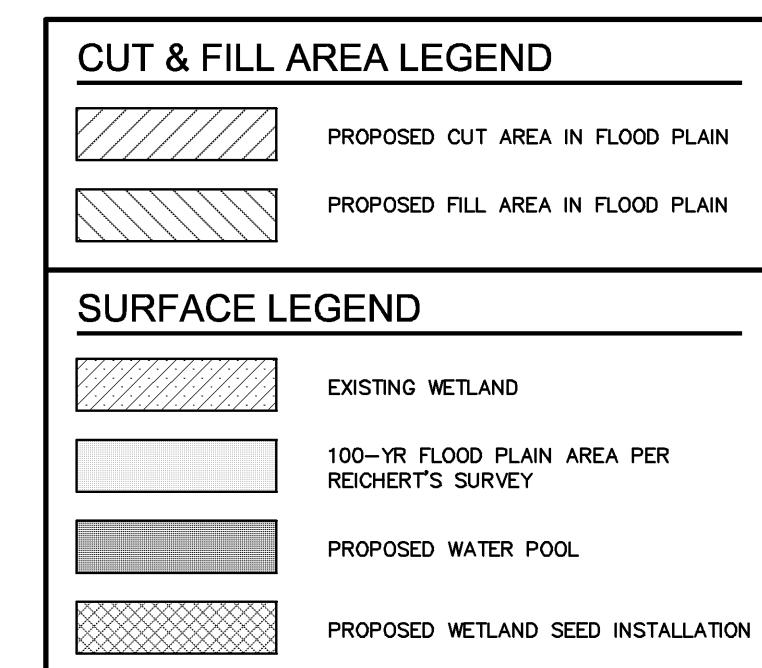
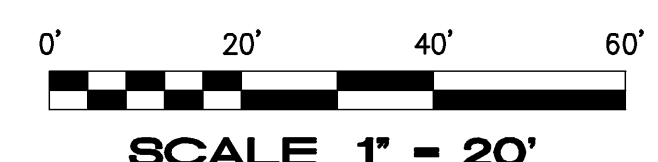
SHEET
Cut & Fill Analysis

DRAWN BY:
PK
DESIGNED BY:
PK
APPROVED BY:
J. Huhta
DATE:
06-19-07
SCALE:
1" = 20'
N/F JOB NO.
C735-03
SHEET NO.
2 of 2



~ 805.60 ~
100-YR FLOOD PLAIN ELEV.
(FEMA, SEPT. 29, 2006
SARGENT CREEK, PROFILE "Q")

~ 805.40 ~
100-YR FLOOD PLAIN ELEV.
(FEMA, SEPT. 29, 2006
SARGENT CREEK, PROFILE "P")



PROPERTY OWNER
Mr. Joseph Gruits, AIA
1350 New Love Lane
Rochester Hills, MI 48309