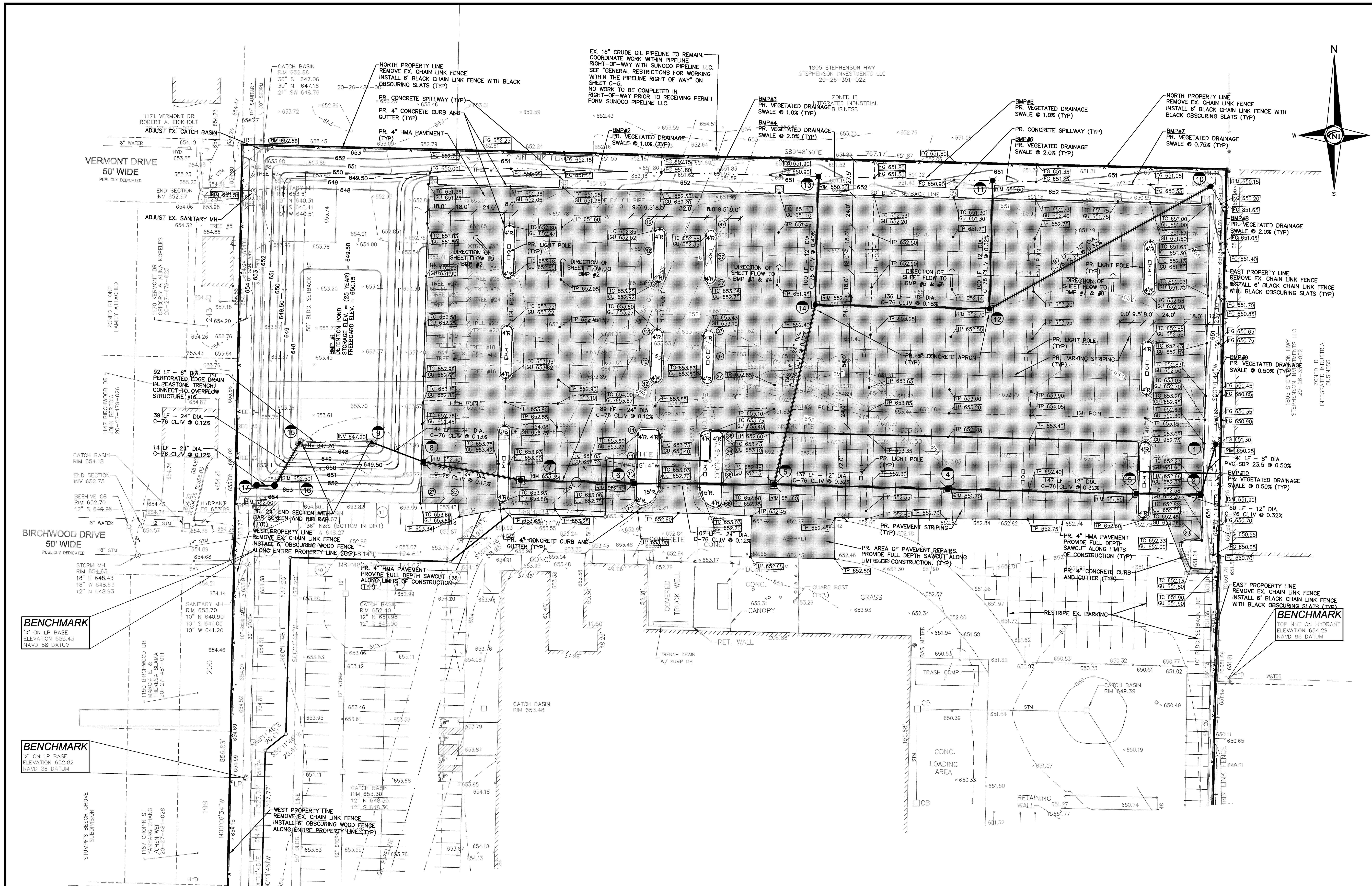
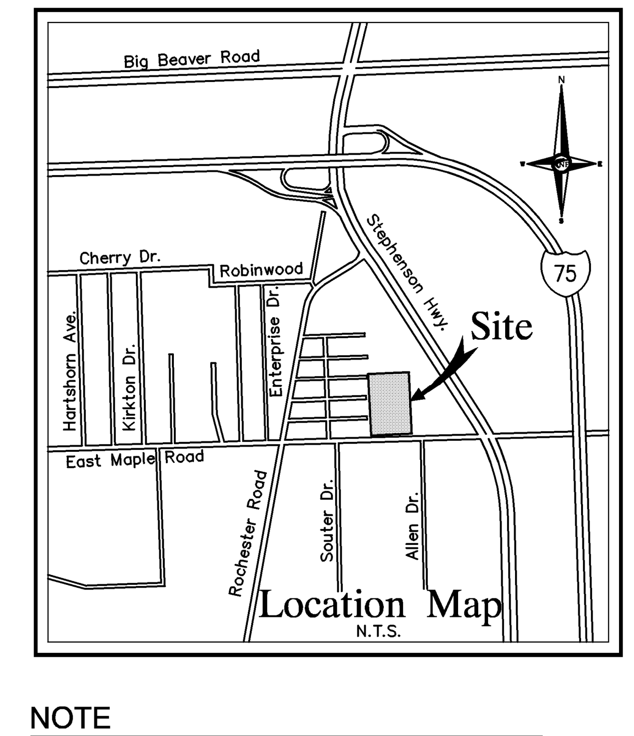




NOTE

ALL REPAIR AND MAINTENANCE ACTIVITIES SHALL BE PERFORMED ENTIRELY WITHIN THE ENCLOSED BUILDING.

NOTE

DISMANTLED, WRECKED, INOPERABLE VEHICLES, ANY VEHICLE PARTS, OR SCRAP OF ANY KIND SHALL NOT BE STORED OUTDOORS.

NOTE

PROPOSED PERIMETER FENCING SHALL BE MAINTAINED IN GOOD CONDITION AT ALL TIMES.

STORM STRUCTURE SCHEDULE

1. PR. 2' R.Y.C.B. W/ 2' SUMP AND EJIW 2850 FRAME AND TYPE 01 COVER
PR. RIM 650.25
PR. 8" SW INV. 648.75
2. PR. 4' DIA CATCH BASIN W/2' SUMP
PR. RIM 651.90
PR. 8" NE INV. 648.55
PR. 12" W INV. 648.55
3. PR. 4' DIA CATCH BASIN W/2' SUMP
PR. RIM 651.60
PR. 12" E INV. 648.39
PR. 12" W INV. 648.39
4. PR. 4' DIA CATCH BASIN W/2' SUMP
PR. RIM 651.70
PR. 12" E INV. 647.92
PR. 12" W INV. 647.92
5. PR. 5' DIA CATCH BASIN W/2' SUMP
PR. RIM 651.60
PR. 12" E INV. 647.48
PR. 24" W INV. 647.48
PR. 24" NE INV. 647.48
6. PR. 4' DIA CATCH BASIN W/2' SUMP
PR. RIM 652.45
PR. 24" E INV. 647.35
PR. 24" W INV. 642.90
7. PR. 4' DIA MANHOLE
RIM 653.35
PR. 24" E INV. 642.82
PR. 24" NW INV. 647.35
8. PR. 4' DIA. CATCH BASIN W/ 2' SUMP
PR. RIM 652.40
PR. 24" SE INV. 647.26
PR. 24" NW INV. 647.26
9. PR. 24" END SECTION W/ BAR SCREEN
PR. SE INV. 647.20
10. PR. 2' DIA. R.Y.C.B. W/ 2' SUMP AND EJIW 2850 FRAME AND TYPE 01 COVER
PR. RIM 650.15
PR. 12" SW INV. 648.52
11. PR. 2' DIA. R.Y.C.B. W/ 2' SUMP AND EJIW 2850 FRAME AND TYPE 01 COVER
PR. RIM 650.60
PR. 12" S INV. 648.21
12. PR. 5' DIA. MANHOLE
PR. RIM 652.70
PR. 12" N INV. 647.89
PR. 12" NE INV. 647.89
PR. 18" W INV. 647.89
13. PR. 2' DIA. R.Y.C.B. W/ 2' SUMP AND EJIW 2850 FRAME AND TYPE 01 COVER W/ 2' SUMP
PR. RIM 650.60
PR. 12" S INV. 648.05
14. PR. 5' DIA. MANHOLE
PR. RIM 652.05
PR. 12" N INV. 647.65
PR. 18" E INV. 647.65
PR. 24" SW INV. 647.65
15. PR. 24" END SECTION W/ BAR SCREEN
PR. SW INV. 647.20
16. PR. 6' DIA. OVERFLOW MANHOLE W/ 2' SUMP
RIM 651.50
PR. 24" NE INV. 647.17
PR. 24" W INV. 647.17
17. PR. 6' DIA MANHOLE OVER EX. SEWER
PR. RIM 652.50
PR. 24" E INV. 647.15
PR. 36" N/S INV. 647.15 (V.I.F.)

PAVING LEGEND

PROPOSED CONCRETE PAVEMENT
PROPOSED ASPHALT PAVEMENT

LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- SAN. CLEAN OUT
- HYDRANT, GATE VALVE — EXISTING WATERMAIN
- MANHOLE, CATCH BASIN — EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- UTILITY POLE, GUY POLE, GUY WIRE — OVERHEAD LINES
- EXISTING GAS MAIN
- C.O., MANHOLE — PR. SANITARY SEWER
- HYDRANT, GATE VALVE — PR. WATER MAIN
- INLET, C.B., MANHOLE — PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- COMPACT TO 95% MAX. DENSITY — PR. SAND BACKFILL
- PROPOSED LIGHT POLE
- PROPOSED CURB AND GUTTER
- TC 600.00 — PR. TOP OF CURB ELEVATION
- GU 600.00 — PR. GUTTER ELEVATION
- TP 600.00 — PR. TOP OF PVMT. ELEVATION
- FG 600.00 — FINISH GRADE ELEVATION

T=	20 Minutes	Time of Concentration (Industrial Site)	City of Troy, Oakland County, Michigan		Project No:	F731-02
I =	175 / (T+25)	10 Year Storm Event Intensity	Storm Sewer Calculations		Project Name:	Penske - Troy
n (Conc.)	0.013	Manning's Roughness Coefficient			Location:	1225 E. Maple Road
n (Pvc)	0.012	Manning's Roughness Coefficient			Dated:	10/17/14
					Revised:	

Drainage Area (Location)	From Manhole Number	To Manhole Number	Drainage Area (Acres)	Runoff Coefficient (C)	Equivalent Area (C * A)	Total Area (Sum C * A)	Time of Concentration (Minutes)	Rainfall Intensity (Inches/Hr.)	Actual Discharge (CFS)	Pipe Size (Inches)	Pipe Slope (% Slope)	Pipe Length (Feet)	Flow Full 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 (% Slope)	Theoretical Velocity (Ft / Sec)	Rim Elevation (Upper)	Change in Elevation (Feet)	Invert Elev. Upper End (Feet)	Invert Elev. Lower End (Feet)
A	10	12	0.620	0.730	0.453	0.453	20.00	3.889	1.760	12	0.32	197	2.566	1.28	2.02	649.97	649.49	0.2441	2.241	650.25	0.63	648.52	647.89
B	11	12	0.570	0.790	0.450	0.450	20.00	3.889	1.751	12	0.32	100	2.566	0.65	2.02	649.73	649.49	0.2416	2.230	650.60	0.32	648.21	647.89
	12	14	0.000	0.000	0.000	0.903	21.28	3.781	3.414	18	0.18	136	2.522	0.90	4.46	649.49	649.34	0.1056	1.932	652.70	0.24	647.89	647.65
C	13	14	0.740	0.780	0.577	0.577	20.00	3.889	2.245	12	0.40	100	2.869	0.58	2.25	649.74	649.34	0.3969	2.858	650.60	0.40	648.05	647.65
	14	5	0.000	0.000	0.000	1.480	22.18	3.709	5.490	24	0.12	143	2.494	0.96	7.84	649.34	649.26	0.0589	1.748	652.05	0.17	647.65	647.48
F	1	2	0.080	0.200	0.016	0.016	20.00	3.889	0.062	8	0.50	41	2.652	0.26	0.93	649.68	649.68	0.0023	0.178	650.25	0.21	648.75	648.55
G	2	3	0.100	0.850	0.085	0.101	20.26	3.867	0.391	12	0.32	50	2.566	0.32	2.02	649.68	649.67	0.0120	0.497	651.90	0.16	648.55	648.39
H	3	4	0.170	0.850	0.145	0.246	20.58	3.839	0.943	12	0.32	147	2.566	0.95	2.02	649.67	649.57	0.0700	1.200	651.60	0.47	648.39	647.92
I	4	5	0.240	0.850	0.204	0.450	21.54	3.760	1.690	12	0.32	137	2.566	0.89	2.02	649.57	649.26	0.2251	2.152	651.70	0.44	647.92	647.48
J	5	6	0.360	0.850	0.306	2.236	22.43	3.690	8.249	24	0.12	107	2.494	0.71	7.84	649.26	649.12	0.1330	2.626	651.60	0.13	647.48	647.35
K	6	7	0.220	0.850	0.187	2.423	23.14	3.635	8.806	24	0.12	89	2.494	0.59	7.84	649.12	648.98	0.1515	2.803	652.45	0.11	642.90	642.82
	7	8	0.000	0.000	0.000	2.423	23.74	3.591	8.699	24	0.12	77	2.494	0.51	7.84	648.98	648.87	0.1479	2.769	653.35	0.09	647.35	647.26
L	8	9	0.120	0.850	0.102	2.525	24.25	3.553	8.970	24	0.13	44	2.596	0.28	8.16	648.87	648.80	0.1572	2.855	652.40	0.06	647.26	647.20

ESTIMATED QUANTITIES

PAVING

DESCRIPTION	QUANTITY	UNITS
4" ASPHALT ON 8" 21AA BASE	16,430	S.Y.
8" REINFORCED CONCRETE SPILLWAY	25	S.Y.
8" NON-REINFORCED CONCRETE BOXOUT	27	S.Y.
4" CONCRETE CURB & GUTTER	2,802	L.F.

STORM SEWER

DESCRIPTION	QUANTITY	UNITS
8" PVC, SDR 23.5, SEWER PIPE	41	L.F.
12" C-76, CLASS IV, SEWER PIPE	728	L.F.
18" C-76, CLASS IV, SEWER PIPE	136	L.F.
24" C-76, CLASS IV, SEWER PIPE	513	L.F.
2' DIA. INLET	4	EA.
4' DIA. CATCH BASIN W/ 2' SUMP	5	EA.
4' DIA. MANHOLE W/ 2' SUMP	1	EA.
5' DIA. CATCH BASIN W/ 2' SUMP	1	EA.
5' DIA. MANHOLE	2	EA.
6' DIA. MANHOLE OVER EX. SEWER	1	EA.
6' DIA. OVERFLOW MANHOLE	1	EA.
24" END SECTION W/ BAR SCREEN	2	EA.
SEWER TAP/CONNECTION	1	EA.

UTILITY CROSSING SCHEDULE

A — EX. 16" CRUDE OIL B/P 647.26 (V.I.F.)
PR. 24" STORM T/P 645.22

-MAINTAIN 24" (MINIMUM) VERTICAL CLEARANCE BETWEEN UTILITIES PER SUNOCO PIPELINE, LLC. STANDARDS
-SEE STORM SEWER PROFILES ON SHEET C4.

SITE DATA

ZONING: IB – INDUSTRIAL BUSINESS DISTRICT

MIN. YARD SETBACKS	REQUIRED	PROPOSED
FRONT	30.0 FT.	N/A
LEAST SIDE YARD	10.0 FT.	13.0 FT.
TOTAL SIDE YARDS	20.0 FT.	41.8 FT.
REAR	20.0 FT.	27.5 FT.

VEHICLE PARKING

REQUIRED PARKING
LIGHT INDUSTRIAL
1 SPACE / 550 SQ. FT. OF GROSS FLOOR AREA

REQUIRED SPACES
175,148 SQ.FT/550 SPACES = 318 SPACES

EXISTING SPACES = 255 SPACES

PROPOSED VEHICLE STORAGE SPACES = 565 SPACES

TOTAL PROVIDED SPACES = 820 SPACES

LOT COVERAGE		
PAVEMENT:	341,658.92 SQ. FT.	52.04%
LANDSCAPE:	140,105.88 SQ. FT.	21.33%
BUILDING:	174,803.61 SQ. FT.	26.63%
TOTAL:	656,586.41 SQ. FT.	100.00%

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

STATE OF MICHIGAN
JASON R. LONGHURST
ENGINEER NO. 54075
LICENSED PROFESSIONAL ENGINEER

PROJECT
Penske - Troy
1225 East Maple Road

CLIENT
Penske Automotive Group
2555 Telegraph Rd.
Bloomfield Hills, MI 48302

CONTACT
Mr. Jeff Anderson
Tel: 248-648-2574
janderson@penskeautomotive.com

PROJECT LOCATION
Part of the Southwest ¼ of Section 26
T.2 North, R.11 East
City of Troy, Oakland County, Michigan

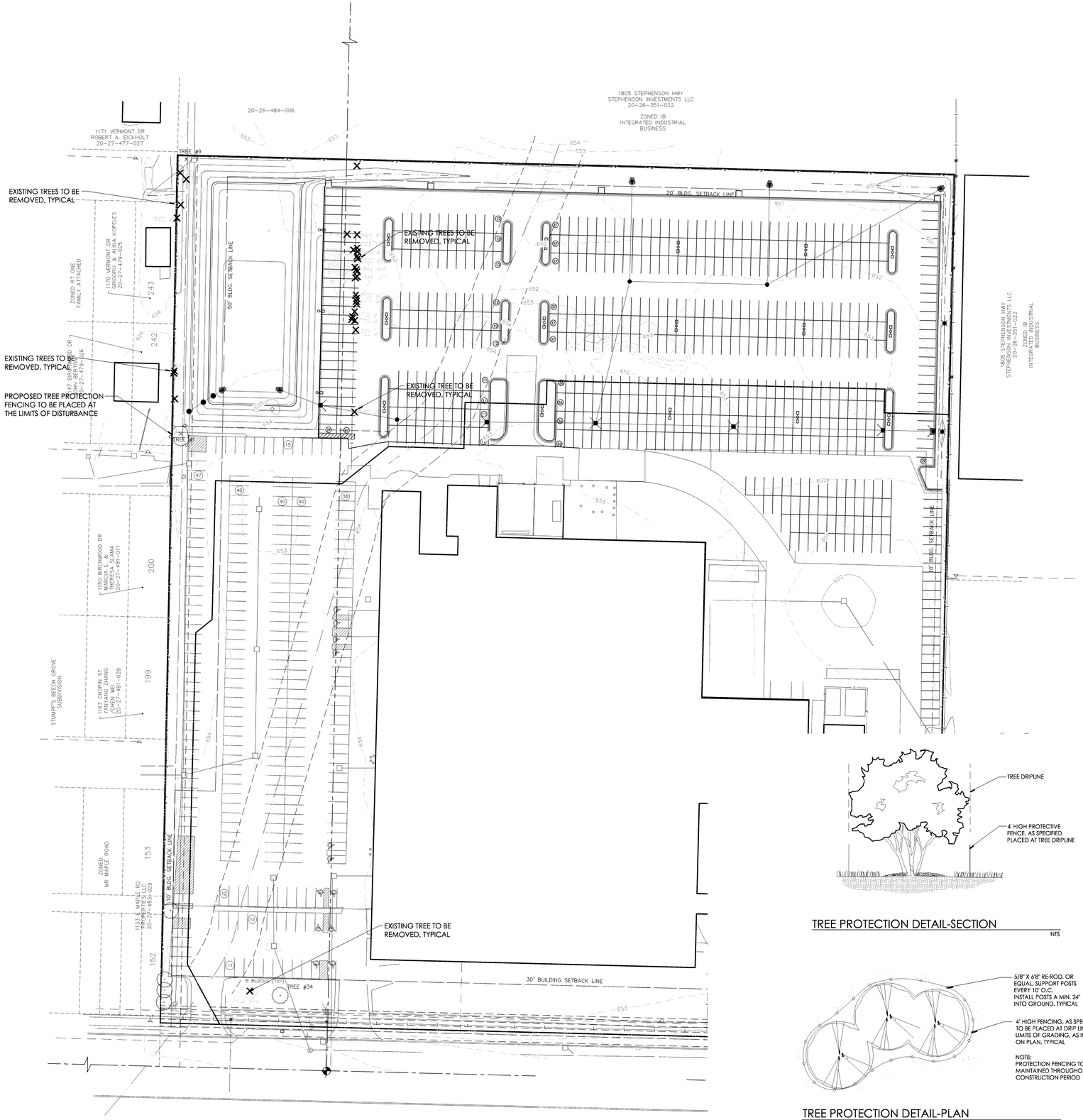
SHEET
Engineering Plan

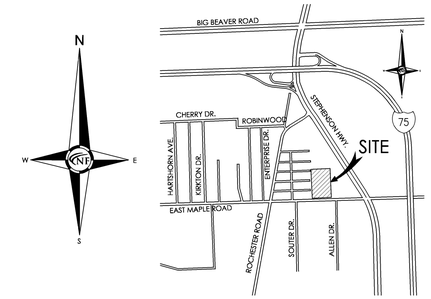
811
Know what's below
Call before you dig.

REVISIONS
09-26-14 ISSUED FOR ENGINEERING REVIEW
10-17-14 REVISED PER CITY REVIEW

DRAWN BY: J. Klenk
DESIGNED BY: J. Longhurst
APPROVED BY: J. Longhurst
DATE: September 26, 2014
SCALE: 1" = 40'
40 20 0 20 40 60

NFE JOB NO. F731-02
SHEET NO. C-3





LOCATION MAP

N.T.S.

GENERAL TREE PROTECTION NOTES

1. APPROVED TREE PROTECTION SHALL BE ERECTED PRIOR TO THE START OF CONSTRUCTION ACTIVITIES, AND SHALL REMAIN IN PLACE UNTIL THE IN PLACE UNTIL CONSTRUCTION IS COMPLETE.
2. ALL UNDERSTORY VEGETATION WITHIN THE LIMITS OF PROTECTIVE FENCING SHALL BE PRESERVED.
3. NO PERSON MAY CONDUCT ANY ACTIVITY WITHIN THE DRIP LINE OF ANY TREE DESIGNATED TO REMAIN, INCLUDING BUT NOT LIMITED TO, PLACING SOLVENTS, BUILDING MATERIALS, CONSTRUCTION EQUIPMENT, OR SOIL DEPOSITS WITHIN THE DRIP LINE.
4. WHERE GROUPINGS OF TREES ARE TO REMAIN, TREE FENCING SHALL BE PLACED AT THE LIMITS OF GRADING LINE.
5. DURING CONSTRUCTION, NO PERSON SHALL ATTACH ANY DEVICE OR WIRE TO ANY TREE, SCHEDULED TO REMAIN.
6. ALL UTILITY SERVICE REQUESTS MUST INCLUDE NOTIFICATION TO THE INSTALLER THAT PROTECTED TREES MUST BE AVOIDED. ALL TRENCHING SHALL OCCUR OUTSIDE OF THE PROTECTIVE FENCING.
7. SWALES SHALL BE ROUTED TO AVOID THE AREA WITHIN THE DRIP LINES OF PROTECTED TREES.
8. TREES LOCATED ON ADJACENT PROPERTIES THAT MAY BE AFFECTED BY CONSTRUCTION ACTIVITIES MUST BE PROTECTED.
9. ROOT ZONES OF PROTECTED TREES SHOULD BE SURROUNDED WITH RIGIDLY STAKED FENCING.
10. THE PARKING OF IDLE AND RUNNING EQUIPMENT SHALL BE PROHIBITED UNDER THE DRIP LINE OF PROTECTED TREES.
11. THE STRIPPING OF TOPSOIL FROM AROUND PROTECTED TREES SHALL BE PROHIBITED.
12. ALL TREES TO BE REMOVED SHALL BE CUT AWAY FROM TREES TO REMAIN.
13. THE GRUBBING OF UNDERSTORY VEGETATION WITHIN CONSTRUCTION AREAS SHOULD BE CLEARED BY CUTTING VEGETATION AT THE GROUND WITH A CHAINSAW OR MINIMALLY WITH A HYDRO-AXE.
14. THE CONTRACTOR IS RESPONSIBLE FOR THE REPLACEMENT PER ORDINANCE GUIDELINES, FOR THE DAMAGE OR REMOVAL OF ANY TREE DESIGNATED TO REMAIN.
15. TREES TO BE REMOVED SHALL BE FIELD VERIFIED, EVALUATED AND FLAGGED FOR REMOVAL, BY THE LANDSCAPE ARCHITECT OR FORESTER, ONLY AS DIRECTED BY THE OWNER OR OWNERS REPRESENTATIVE.

TREE PRESERVATION SUMMARY

TOTAL TREES SURVEYED:	38
TOTAL TREES TO BE REMOVED:	32
MINUS DEAD TREES:	-3
NET TREES TO BE REMOVED:	29

TREE PROTECTION LEGEND

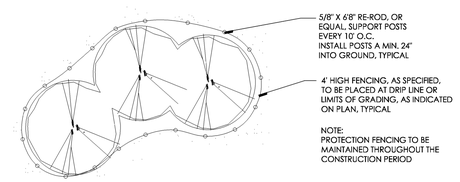
#9 EXISTING TREES TO REMAIN

#16 EXISTING TREES TO BE REMOVED

PROPOSED TREE PROTECTION FENCING

TREE PROTECTION DETAIL-SECTION

NTS



TREE PROTECTION DETAIL-PLAN

NTS

Tree Inventory List

Client Name:	Penske
Job Location:	1225 E. Maple, Troy
Date Completed:	9/3/2014

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.	Type	Other Dia.	Condition
1	Ulmus pumila	Siberian Elm	15			Good
X 2	Acer negundo	Boxelder	10			Poor
X 3	Acer negundo	Boxelder	9			Poor
X 4	Acer negundo	Boxelder	10			Poor
X 5	Acer negundo	Boxelder	11			Poor
X 6	Acer negundo	Boxelder	9	Twin	4	Poor
X 7	Ulmus pumila	Siberian Elm	8			Poor
X 8	Acer negundo	Boxelder	5			Poor
X 9	Acer negundo	Boxelder	5			Poor
X 10	Populus deltoides	Eastern Cottonwood	13			Poor
X 11	Populus deltoides	Eastern Cottonwood	18			Fair
X 12	Populus deltoides	Eastern Cottonwood	15	Twin	13	Fair
X 13	Populus deltoides	Eastern Cottonwood	17			Poor
X 14	Populus deltoides	Eastern Cottonwood	22			Fair
X 15	Ulmus pumila	Siberian Elm	10			Poor
X 16	Populus deltoides	Eastern Cottonwood	18			Fair
X 17	Populus deltoides	Eastern Cottonwood	15	Twin	15	Poor
X 18	Populus deltoides	Eastern Cottonwood	20			Good
X 19	Populus deltoides	Eastern Cottonwood	19	Multiple	16, 9	Fair
X 20	Populus deltoides	Eastern Cottonwood	10			Poor
X 21	Populus deltoides	Eastern Cottonwood	16			Good
X 22	Populus deltoides	Eastern Cottonwood	14			Fair
X 23	Populus deltoides	Eastern Cottonwood	14			Fair
X 24	Populus deltoides	Eastern Cottonwood	12			Fair
X 25	Populus deltoides	Eastern Cottonwood	12			Fair
X 26	Populus deltoides	Eastern Cottonwood	16			Good
X 27	Populus deltoides	Eastern Cottonwood	17			Fair
X 28	Populus deltoides	Eastern Cottonwood	17			Dead
X 29	Populus deltoides	Eastern Cottonwood	12			Dead
X 30	Populus deltoides	Eastern Cottonwood	16	Twin	13	Good
X 31	Populus deltoides	Eastern Cottonwood	11			Fair
X 32	Populus deltoides	Eastern Cottonwood	28			Fair
X 33	Acer platanoides	Norway maple	6			Dead
34	Acer platanoides	Norway maple	8			Good
35	Ulmus pumila	Siberian Elm	12			Fair
36	Pinus nigra	Austrian Pine	9			Fair
37	Pinus nigra	Austrian Pine	9			Good
38	Pinus nigra	Austrian Pine	16			Good

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

STATE OF MICHIGAN
GEORGE A. OSTROWSKI
No. 43331
REGISTERED LANDSCAPE ARCHITECT

PROJECT
Penske - Troy
1225 East Maple Road

CLIENT
Penske Automotive Group
2555 Telegraph Rd.
Bloomfield Hills, MI 48302

CONTACT
Mr. Jeff Anderson
Tel: 248-648-2574
janderson@penskeautomotive.com

PROJECT LOCATION
Part of the Southwest ¼
of Section 26
T.2 North, R.11 East
City of Troy, Oakland County,
Michigan

SHEET
Tree Preservation Plan

811
Know what's below
Call before you dig.

REVISIONS
09-15-2014 ISSUED FOR SITE PLAN REVIEW
10-17-2014 REVISED PER CITY REVIEW

DRAWN BY:
G.Ostrowski

DESIGNED BY:
G.Ostrowski

APPROVED BY:
G.Ostrowski

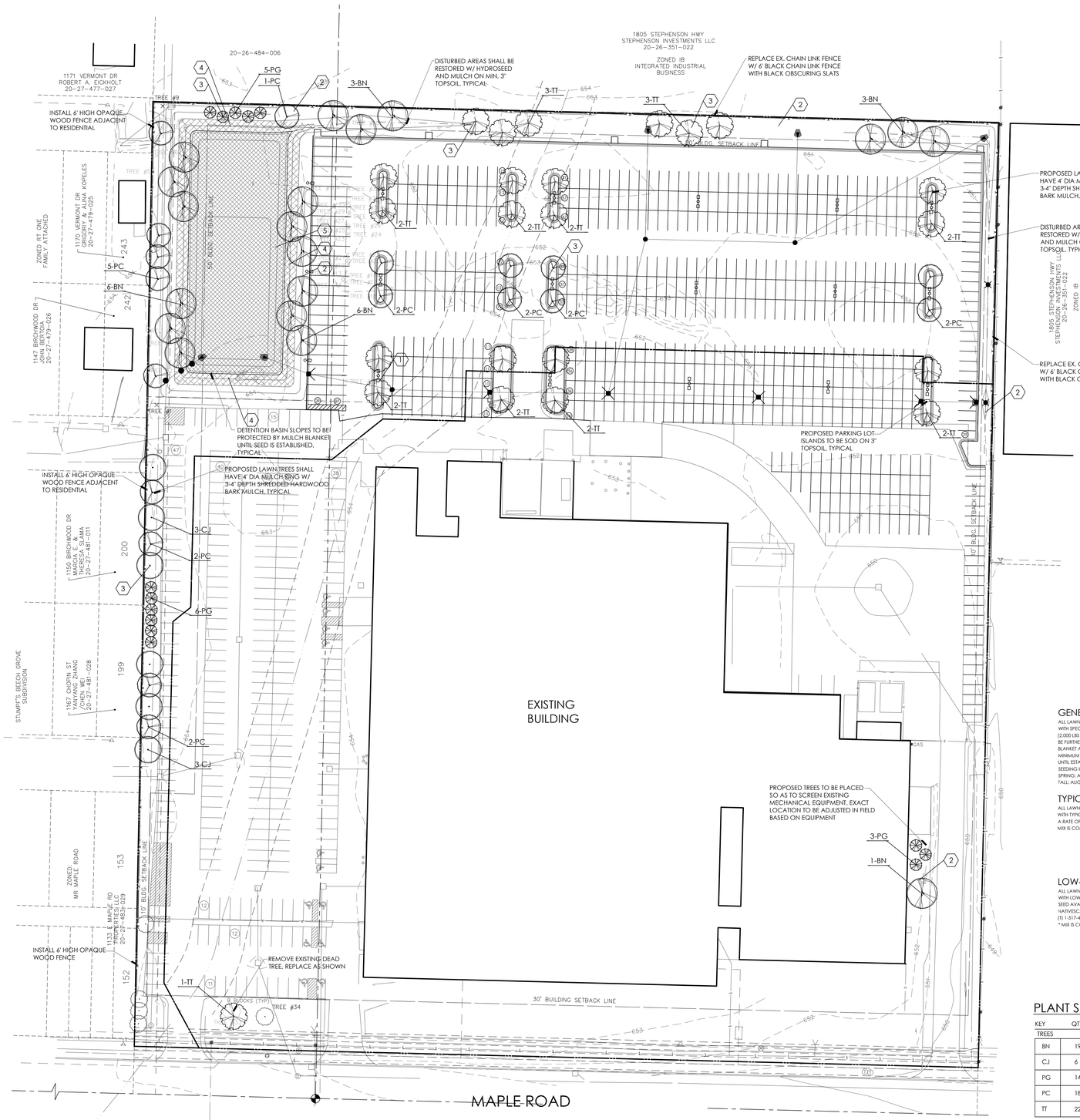
DATE:
September 15, 2014

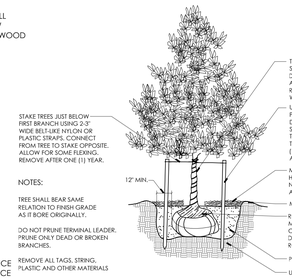
SCALE: 1" = 50'

50 25 0 25 50 75

NFE JOB NO. F731-02

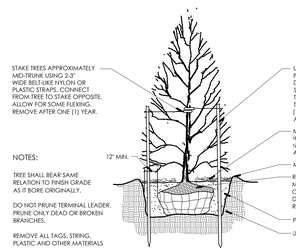
SHEET NO. L-1





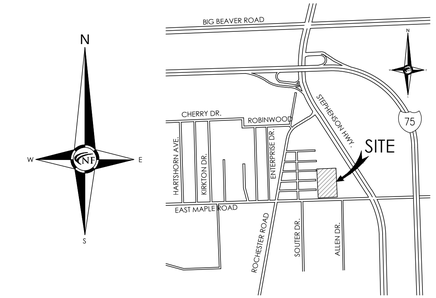
DECIDUOUS TREE PLANTING DETAIL

NTS



EVERGREEN TREE PLANTING DETAIL

NTS



LOCATION MAP

N.T.S.

GENERAL SEED NOTE:

ALL LAWN AREAS DESIGNATED TO BE SEEDED, SHALL BE HYDRO-SEEDED WITH SPECIFIED BLENDS, AND STABILIZED WITH WOOD CELLULOSE FIBER MULCH (2,000 LBS PER ACRE) . IN AREAS SUBJECT TO EROSION, SEEDED LAWN SHALL BE FURTHER STABILIZED WHERE NECESSARY WITH BIODEGRADABLE EROSION BLANKET AND STAKED UNTIL ESTABLISHED. ALL SEED SHALL BE APPLIED OVER A MINIMUM 3" PREPARED TOPSOIL, AND SHALL BE KEPT MOIST AND WATERED DAILY UNTIL ESTABLISHED.
SEEDING INSTALLATION SHALL OCCUR ONLY:
SPRING: APRIL 1 TO JUNE1
FALL: AUGUST 15 TO OCTOBER 15

TYPICAL SEEDED LAWN MIX:

ALL LAWN AREAS DESIGNATED TO BE SEEDED, SHALL BE HYDROSEEDED WITH TYPICAL DROUGHT TOLERANT, DURABLE BLENDED SEED MIX, AT A RATE OF 220 LBS PER ACRE
MIX IS COMPRISED OF
30% NITE HAWK PERENNIAL RYE
30% KENTUCKY BLUEGRASS
20% CREEPING RED FESCUE
10% MERIT KENTUCKY BLUEGRASS
10% NEWPORT KENTUCKY BLUEGRASS

LOW-GROW LAWN MIX:

ALL LAWN AREAS DESIGNATED TO BE SEEDED, SHALL BE HYDROSEEDED WITH LOW-GROW LAWN SEED MIX, AT A RATE OF 5 LBS/1,000 S.F.
SEED AVAILABLE FROM:
NATIVESCAPES, LLC
(T) 1-517-456-7245
* MIX IS COMPRISED OF
22.8% PENNLAWN RED FESCUE
22.5% CREEPING RED FESCUE
21.7% CHEWINGS FESCUE
11.8% VICTORY II CHEWINGS FESCUE
9.8% SPARTAN HEAD FESCUE
9.9% AZAY SHEEPS FESCUE

GENERAL SOD NOTE:

ALL LAWN AREAS DESIGNATED TO BE SODDED, SHALL BE SODDED WITH A BLENDED DURABLE BLUEGRASS SOD, TYPICALLY GROWN IN THE REGION. ALL TURF SHALL BE PLACED ON A MINIMUM 3" PREPARED TOPSOIL, AND WATERED DAILY UNTIL ESTABLISHMENT. IN AREAS SUBJECT TO EROSION, SODDED LAWN SHALL BE STABILIZED WHERE NECESSARY, AND LAID PERPENDICULAR TO SLOPES
SOD INSTALLATION SHALL OCCUR ONLY:
SPRING: APRIL1 TO JUNE1
FALL: AUGUST 15 TO OCTOBER 15

DETENTION BASIN FLOOR MIX

*CONTAINS AT LEAST 12 WILDFLOWERS AND 4 GRASSES

WILDFLOWERS
NEW ENGLAND ASTER
PALE INDIAN PLANTAIN
JOE PYE WEED
BONESET
OX EYE SUNFLOWER
DENSE BLAZINGSTAR
GREAT BLUE LOBELIA
CARDINAL FLOWER
GREEN-HEADED CONEFLOWER
BLACK-EYED SUSAN
CUPPLANT
OHIO GOLDENROD
BLUE VERVAIN
CULVER'S ROOT
IRONWEED
YELLOW CONEFLOWER

NATIVE GRASSES
BIG BLUSTEM
CANADA WILD RYE
DARK GREEN BULRUSH
INDIAN GRASS
PRAIRIE CORD GRASS
WETLAND SEDGES

TEMPORARY GRASSES
SEED OATS
ANNUAL RYE
WINTER WHEAT
AMERICAN SLOUGH GRASS

RECOMMENDED SEEDING RATE: 35-40 LBS/ACRE

SEED MIX AVAILABLE:
NATIVESCAPE, LLC
PO BOX 122
MANCHESTER, MI 48158
T 517.456.7696

GENERAL LANDSCAPE NOTES

1. LANDSCAPE CONTRACTOR SHALL VISIT SITE, INSPECT EXISTING CONDITIONS AND REVIEW PROPOSED PLANTING AND RELATED WORK. IN CASE OF DISCREPANCY BETWEEN PLAN AND PLANT LIST, THE PLAN SHALL GOVERN QUANTITIES. CONTACT THE LANDSCAPE ARCHITECT WITH ANY CONCERNS.
2. THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL ON-SITE UTILITIES PRIOR TO BEGINNING CONSTRUCTION ON HIS/HER PHASE OF WORK. ANY DAMAGE OR INTERUPTION OF SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. THE CONTRACTOR SHALL COORDINATE ALL RELATED ACTIVITIES WITH OTHER TRADES, AND SHALL REPORT ANY UNACCEPTACBLE SITE CONDITIONS TO THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT.
4. PLANTS SHALL BE FULL, WELL-BRANCHED, AND IN HEALTHY VIGOROUS GROWING CONDITION.
5. PLANTS SHALL BE WATERED BEFORE AND AFTER PLANTING IS COMPLETE.
6. ALL TREES MUST BE STAKED, FERTILIZED AND MULCHED AND SHALL BE GUARANTEED TO EXHIBIT A NORMAL GROWTH CYCLE FOR AT LEAST ONE (1) YEAR FOLLOWING PLANTING.
7. ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED IN THE MOST RECENT EDITION OF THE "AMERICAN STANDARDS FOR NURSERY STOCK".
8. CONTRACTOR WILL SUPPLY FINISHED GRADE AND EXCAVATE AS NECESSARY TO SUPPLY PLANT MIX DEPTH IN ALL PLANTING BEDS AS INDICATED IN PLANT DETAILS AND A DEPTH OF 4" IN ALL LAWN AREAS.
9. PROVIDE CLEAN BACKFILL SOIL, USING MATERIAL STOCKPILED ON-SITE. SOIL SHALL BE SCREENED AND FREE OF DEBRIS, FOREIGN MATERIAL, AND STONE.
10. SLOW-RELEASE FERTILIZER SHALL BE ADDED TO THE PLANT PITS BEFORE BEING BACKFILLED. APPLICATION SHALL BE AT THE MANUFACTURERS RECOMMENDED RATES.
11. AMENDED PLANT MIX (PREPARED TOPSOIL) SHALL CONSIST OF 1/3 SCREENED TOPSOIL, 1/3 SAND, AND 1/3 "DAIRY DOO" COMPOST, MIXED WELL AND SPREAD TO A DEPTH AS INDICATED IN PLANTING DETAILS.
12. ALL PLANTINGS SHALL BE MULCHED WITH SHREDDED HARDWOOD BARK, SPREAD TO A DEPTH OF 3" FOR TREES AND SHRUBS, AND 2" ON ANNUALS, PERENNIALS, AND GROUNDCOVER PLANTINGS. MULCH SHALL BE FREE FROM DEBRIS AND FOREIGN MATERIAL, AND PIECES ON INCONSISTENT SIZE.
13. NO SUBSTITUTIONS OR CHANGES OF LOCATION, OR PLANT TYPE SHALL BE MADE WITHOUT THE APPROVAL OF THE LANDSCAPE ARCHITECT OR OWNERS REPRESENTATIVE.
14. THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS PRIOR TO INSTALLATION.
15. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL PLANT MATERIAL IN A VERTICAL CONDITION THROUGHOUT THE GUARANTEED PERIOD.
16. THE LANDSCAPE ARCHITECT OR OWNERS REPRESENTATIVE SHALL HAVE THE RIGHT TO REJECT ANY WORK OR MATERIAL THAT DOES NOT MEET THE REQUIREMENTS OF THE PLANS AND/OR SPECIFICATIONS.
17. THE LANDSCAPE CONTRACTOR SHALL SEED AND MULCH OR SOD (AS INDICATED ON PLANS) ALL AREAS DESIGNATED AS SUCH ON THE PLANS, THROUGHOUT THE CONTRACT LIMITS. FURTHER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING AREAS DISTURBED DURING CONSTRUCTION, NOT IN THE CONTRACT LIMITS, TO EQUAL OR GREATER CONDITION.
18. ALL LANDSCAPE AREAS SHALL HAVE PROPER DRAINAGE THAT PREVENTS EXCESSIVE WATER FROM PONDING ON LAWN AREAS OR AROUND TREES AND SHRUBS.
19. ALL LANDSCAPE AREAS SHALL BE IRRIGATED WITH AN AUTOMATIC UNDERGROUND SYSTEM.

GROUNDCOVER KEY

1. PROPOSED SOD AREAS ON 3" TOPSOIL
2. RESTORE EXISTING LAWN AREAS W/ HYDROSEED AND MULCH
3. 3-4' DIA SPADE CUT EDGE W/ 3" SHREDDED BARK MULCH
4. LOW MAINTENANCE LAWN AREAS (LOW GROW SEED BLEND)
5. DETENTION BASIN FLOOR SEED MIX

PLANT SCHEDULE

KEY	QTY	BOTANICAL/COMMON NAME	SIZE	SPACING	ROOT	COMMENT
TREES						
BN	19	Betula nigra River Birch	14' HT	SEE PLAN	B&B	CLUMP FORM, 3 CANES
CJ	6	Cercidiphyllum japonicum Katsura Tree	12' HT	SEE PLAN	B&B	CLUMP FORM, 3 CANES
PG	14	Picea glauca 'Densata' Black Hills Spruce	8' HT	SEE PLAN	B&B	BRANCHED TO GROUND
PC	18	Pyrus calleryana 'Cleveland Select' Cleveland Select Pear	2.5" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS
TT	22	Tilia tomentosa 'Sterling' Sterling Linden	2.5" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS

LANDSCAPE REQUIREMENTS

SITE AREA: 656,586.41 S.F. OR 15.07 ACRES

GENERAL SITE LANDSCAPE
20% OF THE TOTAL SITE AREA SHALL BE LANDSCAPED
656,586.41 S.F. X 20% = 131,317.28 S.F. REQUIRED
140,105.88 S.F. PROVIDED (21.33%)

PARKING LOT INTERIOR REQUIREMENTS
1 TREE PER 8 SPACES, MIN 200 S.F. PER ISLAND
REQUIRED: 565 SPACES / 8 = 70.63 OR 71 TREES REQUIRED
PROVIDED: 24 TREES IN PARKING LOT, 47 AROUND PERIMETER

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

STATE OF MICHIGAN
OSTROWSKI
REGISTERED LANDSCAPE ARCHITECT

PROJECT
Penske - Troy
1225 East Maple Road

CLIENT
Penske Automotive Group
2555 Telegraph Rd.
Bloomfield Hills, MI 48302
CONTACT
Mr. Jeff Anderson
Tel: 248-648-2574
janderson@penskeautomotive.com

PROJECT LOCATION
Part of the Southwest ¼ of Section 26
T.2 North, R.11 East
City of Troy, Oakland County, Michigan

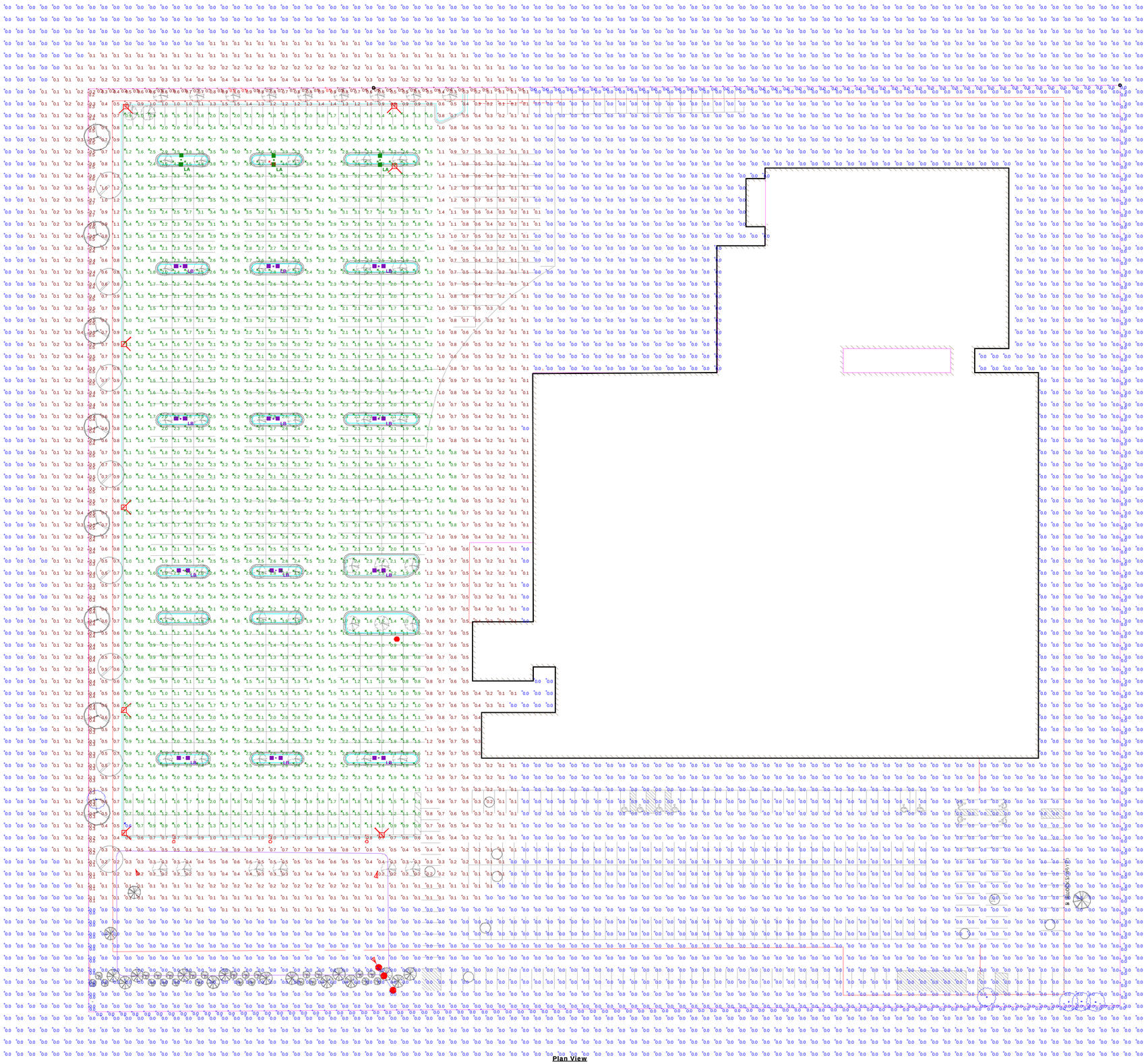
SHEET
Landscape Plan

811 Know what's below Call before you dig.

REVISIONS
09-15-2014 ISSUED FOR SITE PLAN REVIEW
10-17-2014 REVISED PER CITY REVIEW

DRAWN BY: G. Ostrowski
DESIGNED BY: G. Ostrowski
APPROVED BY: G. Ostrowski
DATE: September 15, 2014
SCALE: 1" = 50'
50 25 0 25 50 75

NFE JOB NO. F731-02
SHEET NO. L-2



Plan View
Scale - 1" = 40'

Luminaire Locations					
	Location				
Label	X	Y	MH	Orientation	Tilt
LA	-1386.68	-1262.57	25.00	182.04	0.00
LA	-1309.80	-1262.79	25.00	181.03	0.00
LA	-1221.53	-1262.82	25.00	179.86	0.00
LB	-1387.12	-1351.03	25.00	270.00	0.00
LB	-1310.12	-1351.03	25.00	270.00	0.00
LB	-1222.42	-1351.03	25.00	270.00	0.00
LB	-1387.12	-1477.73	25.00	270.00	0.00
LB	-1310.12	-1477.73	25.00	270.00	0.00
LB	-1222.42	-1477.73	25.00	270.00	0.00
LB	-1384.82	-1603.83	25.00	270.00	0.00
LB	-1307.82	-1603.83	25.00	270.00	0.00
LB	-1222.42	-1603.73	25.00	270.00	0.00
LB	-1384.82	-1759.63	25.00	270.00	0.00
LB	-1307.82	-1759.63	25.00	270.00	0.00
LB	-1222.42	-1759.63	25.00	270.00	0.00

Note

1. SEE MH COLUMN OF LUMINAIRE LOCATIONS FOR MOUNTING HEIGHTS.
2. SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTORS.
3. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT GRADE
4. LIGHT LEVELS ARE NOT TO EXCEED 20 F.C. DURING BUSINESS HOURS AND ARE NOT TO EXCEED 10 F.C. AFTER BUSNINESS HOURS
5. WHERE APPLICABLE, ALL FIXTURES ARE FULLY SHIELDED

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

Statistics							
Description	Symbol	Avg	Max	Min	Max / Min	Avg / Min	Avg / Max
OVERALL LTG VALUES	+	0.5 fc	4.8 fc	0.0 fc	N/A	N/A	0.1:1
PARKING LOT TLG VALUES	×	2.0 fc	4.8 fc	0.6 fc	8.0:1	3.3:1	0.4:1
PROPERTY LINE LTG VALUES	+	0.1 fc	0.9 fc	0.0 fc	N/A	N/A	0.1:1

Luminaire Schedule											
Symbol	Label	Quantity	Manufacturer	Description	Catalog Number	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
	LA	3	Lithonia Lighting	DSX0 LED WITH (2) 20 LED LIGHT ENGINE, TYPE T3M OPTIC, 5000K, @ 1000mA	DSX0 LED 40C 1000 50K T3M MVOLT	LED	1	DSX0_LED_40C_1000_50K_T3M_MVOLT.ies	13168.56	0.9	276
	LB	12	Lithonia Lighting	DSX0 LED WITH (2) 20 LED LIGHT ENGINE, TYPE T5W OPTIC, 5000K, @ 1000mA	DSX0 LED 40C 1000 50K T5W MVOLT	LED	1	DSX0_LED_40C_1000_50K_T5W_MVOLT.ies	13578.48	0.9	276

VISUAL

PENSKE: TROY
SITE PLAN: VALUES AT GRADE
PREPARED FOR NOWAK & FRAUS ENGINEERS
GASSER BUSH ASSOCIATES

Designer
AAM
Date
10/16/2014
Scale
AS NOTED
Drawing No.
#14-29955 - V1
REV 10-17-2014