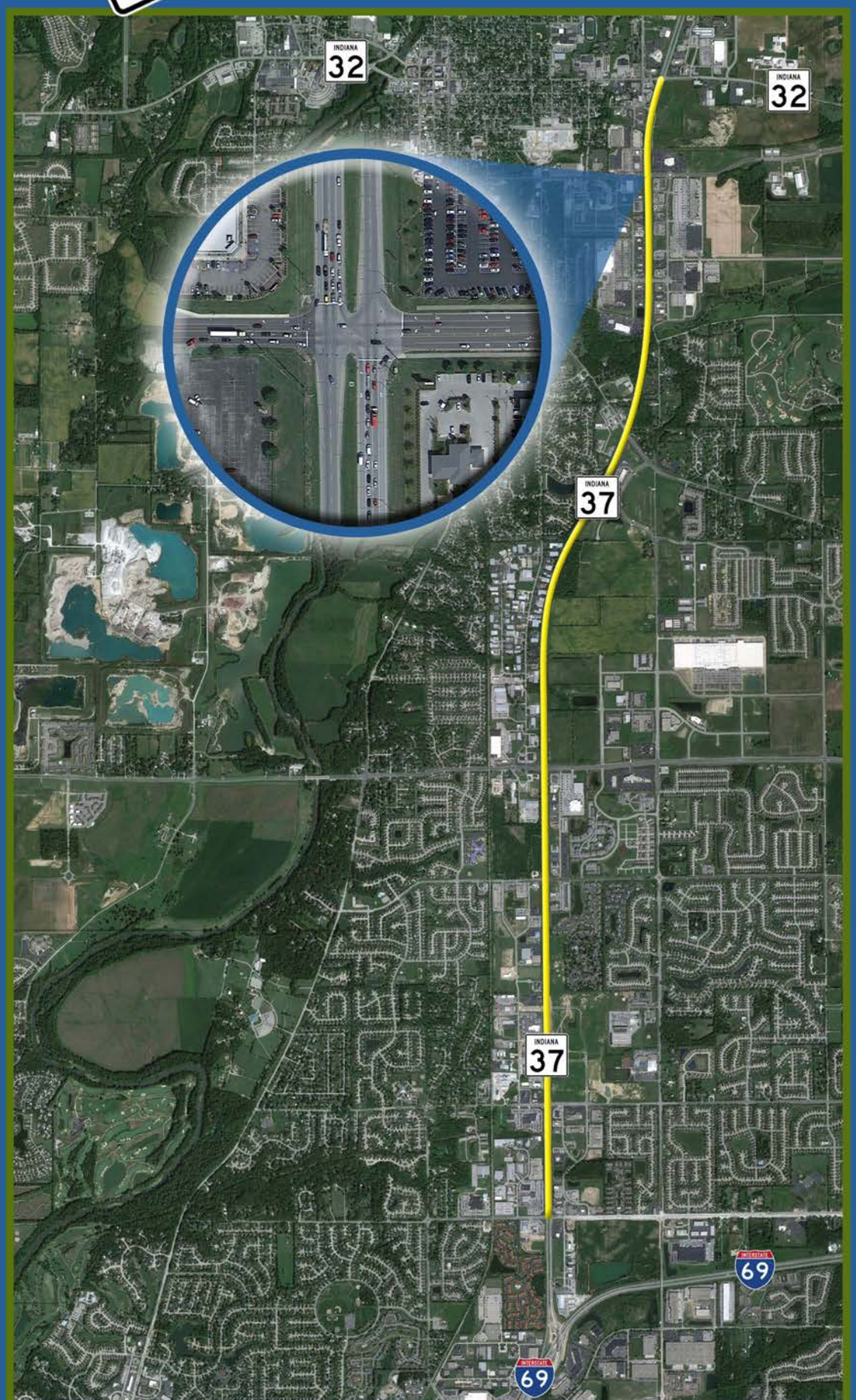
SR 37 Mobility Study



SR 37 and Pleasant Street

Presented to:

County of Hamilton State of Indiana

MPO

Town of Fishers Indiana

City of Noblesville Incorporated May 6, 1887 Seal Indiana

Indiana Department of Transportation INDOT

Presented by:

United Consulting

American Structurepoint Inc.

SR 37 Mobility Study
Pleasant Street at SR 37

Description of Proposed Project

I. GENERAL

The Indiana Department of Transportation, the Indianapolis Metropolitan Planning Organization, Hamilton County, Town of Fishers, and City of Noblesville have identified the need to significantly improve the SR 37 corridor from 126th Street to SR 32 / SR 38. The Study area also extends along 146th Street from Allisonville Road to Cumberland Road. The Study was funded 80% by the Federal Highway Administration through the MPO with the remainder provided by Hamilton County.

II. PURPOSE

The purpose of the Study was to evaluate whether grade separation of the existing intersections would improve the traffic capacity, efficiency, and safety for the project corridors without the need to add additional travel lanes along this segment of the SR 37 corridor. This includes the basic concept of reconstructing each of the existing and anticipated signalized intersections through this segment of SR 37 to interchanges; thus eliminating the need for added travel lanes along the corridor. If this was shown to be an improvement, then the Study was to further identify a preferred design solution for future improvements along the SR 37 corridor and to identify potential environmental concerns that may be present, and to establish a reliable budget to construct these improvements.

The preferred design solution was defined to a level which will allow officials with the INDOT, MPO, Hamilton County, Town of Fishers, and the City of Noblesville to begin making necessary amendments to their requisite Planning Documents.

III. EXISTING FACILITY

The subject corridor is located in south central Hamilton County in Delaware and Noblesville Townships, and in the Town of Fishers and City of Noblesville. SR 37 runs south to north through Hamilton County; including the Study area. Additionally, SR 37 is intersected by I-69 immediately south of the Study area. SR 37 is designated as a state highway in central Indiana. Near the Study area SR 37 begins at I-69 and proceeds in a northerly direction before terminating in the City of Marion, Grant County. The items identified in bold below show the existing roadway system at SR 37 and Pleasant Street:

Table 1 – Existing Roadway System				
Facility	Traffic Control	Travel Lanes	Functional Classification	Speed Limit (MPH)
SR 37	**-**	**4**	**Expressway**	**55**
Pleasant Street	**Signal**	**2 (West of SR 37 4 (East of SR 37**	**Collector**	**35**

The following paragraphs give additional details for existing Pleasant Street within the Study area:

Pleasant Street

Pleasant Street crosses SR 37 at a right angle to form a four way at-grade intersection. SR 37 is classified as an Expressway through the limits of this intersection and has limited access right of way. Through the limits of this intersection, SR 37 is a four lane roadway with two 12-foot travel lanes, a four foot paved inside shoulder and ten foot paved outside shoulder. The northbound and southbound travel lanes are separated by a 50 foot open grass median. The existing pavement is full depth HMA and is in good condition. Next to all SR 37 turn lanes at the intersection, the shoulders are four feet wide.

Pleasant Street is classified as a Collector through the limits of this intersection and is not access controlled. On the west side of the existing intersection, outside the intersection limits, Pleasant Street is a two lane roadway with two 12-foot travel lanes, outside curb and gutter and a six foot sidewalk on each side. The existing pavement on the west side of the intersection is full depth HMA and is in good condition. Within the intersection limits, the north side of the roadway is bordered by curb and gutter and a six foot sidewalk. The south side of the roadway is bordered by a five foot shoulder from SR 37 to approximately 220 feet west of the intersection. The south side of the roadway west of this point is bordered by curb and gutter and a six foot sidewalk.

One the east side of the existing intersection, outside the intersection limits, Pleasant Street is a four lane roadway with two 12-foot travel lanes in each direction bordered by curb and gutter, and an eight foot pedestrian pathway on the south side separated by a five foot grass buffer. The eastbound and westbound lanes are separated by a 16 foot wide raised center median. The existing pavement within the intersection limits on the east side is full depth HMA and is in good condition. Outside curb and gutter and an eight foot pedestrian pathway borders both sides of the roadway separated by a five foot grass buffer. There is also a painted five foot wide painted flush median in this area.

The intersection of SR 37 and Pleasant Street is a signalized intersection, operating as an 8 phase signal with protected left turns in each direction. Approaching the intersection, SR 37 has one left turn lane, two through lanes, and one right turn lane on each approach. Pleasant Street has one left turn lane, one through lane, and one right turn lane on the westbound approach; and one left turn lane and one shared right/through lane on the eastbound approach.

The intersection is bordered by businesses in each quadrant. For a listing of each business adjacent to the intersection, see the aerial displays.

IV. EVALUATED BUILD ALTERNATIVES

The Study evaluated two primary build alternatives: upgrading the existing SR 37 corridor with either teardrop roundabout interchanges (Alternative 1) or tight diamond interchanges (Alternative 2). Both alternatives will significantly improve traffic operations at the Study intersections.

V. TRAFFIC OPERATION ANALYSIS

Table 2 shows the results of the Capacity Analysis for the proposed improvements at SR 37 and Pleasant Street for the study year of 2036. A teardrop roundabout interchange is proposed, with a 4-lane bridge crossing SR 37.

Table 2 – Alternative 1 (2036) Capacity Analysis

Intersection	Traffic Control	Peak	West Leg		East Leg		South Leg		North Leg		Overall	
			LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
SR 37 NB Ramps and Pleasant Street	Roundabout	AM	A	1.8	A	1.8	A	1.8	--	--	A	1.8
		PM	A	2.4	A	3.6	A	2.4	--	--	A	3.0
SR 37 SB Ramps and Pleasant Street	Roundabout	AM	A	1.8	A	1.8	--	--	A	1.8	A	1.9
		PM	A	3.6	A	2.4	--	--	A	3.0	A	2.9

Please see the Traffic Operation Analysis (binder labeled Traffic Operation Analysis) to review the Study area results in their entirety.

VI. GEOTECHNICAL EVALUATION

The corridor is located in a glaciated area. With the exception of the area near Stony Creek, the alignment is within a typical Central Indiana profile that consists of softer and moderate-plasticity clays overlying hard and low-plasticity clays, and bedrock is over 100 feet deep. The harder clays are usually within 20 feet of the surface. In addition, frequent seams and layers of granular soils can be encountered. This profile typically includes seasonal perched groundwater conditions within a few feet of the surface. From a design and construction perspective, CBR values are commonly in the range of 3 to 4, and subsurface drainage is typically required for pavement and below-grade structures (e.g., cut walls). Because of the perched groundwater and the clayey soils, improvement of the subgrade for support of pavement and construction activities is usually required, particularly in areas of cut. Support of bridges on driven piling and/or spread foundations is anticipated to be viable. In addition, support of MSE walls in these conditions typically includes preparation of the subgrade for the leveling pad and structure fill.

Cut walls over about 12 feet in height are anticipated to required tie-backs in order to control deflections, and the length of tie-backs is typically in the range of 25 to 50 ft.

An exception to the profiles discussed above is anticipated to be encountered at the SR 32/38 interchange. On the east side of SR 37 at that interchange, we anticipate that marly soils may be exposed and/or may create special design and construction considerations, such as remove and replace or ground improvement. An additional construction cost of $500,000 is anticipated at the Pleasant Street intersection and $1,000,000 at the SR 32 / SR 38 intersection to mitigate this condition.

A Geotechnical Evaluation will be required to evaluate the subsurface conditions and to provide the necessary information for a pavement design. This will include soil borings and a formal Geotechnical Report with recommendations that will be approved by INDOT.

VII. ENVIRONMENTAL INVESTIGATION

Improvements to this intersection will require the completion of an environmental document to qualify for federal funding. A Categorical Exclusion as falling within the guidelines of the National List of Categorical Exclusions will be required for this project. The Categorical Exclusion will need to be prepared in a manner consistent with the latest version of the "Indiana Categorical Exclusion Manual". The paragraphs below highlight the key environmental issues associated with the proposed project.

Wetland and Stream Impacts

The National Wetland Inventory Map shows no wetlands within the project limits. Unnamed Tributary to Stony Creek is located approximately 900 feet north of the intersection. A "Waters of the U.S." (wetland determination/delineation) report will be required to confirm and identify wetland boundaries and streams throughout the project limits.

Historic and Cultural Resources

Archeological: The proposed project will result in the acquisition of undisturbed right-of-way. As a result, an Archaeological Records Review and Phase Ia Archaeological Survey will be required to identify potentially significant cultural resources within the preferred alignment.

Historical: The land use in close proximity and within the project area consists of commercial properties. The *Hamilton County Interim Report* shows no historic properties within the probable Area of Potential Effects. However, properties may have become 50 years of age since the publication of the interim report.

At a minimum, this project will require the completion of the following Section 106 documents: Phase Ia Archaeological Survey, Historic Properties Report and a Section 106 Findings and Determinations (36 CFR 800.11).

Hazardous Materials

A search of the red flag indicators revealed no potential hazardous waste sites within the project area. As a result, no further environmental site assessment is recommended for this intersection.

Regulatory Permits

IDNR Construction in a Floodway: The proposed intersection improvements are within the floodway of unnamed tributary to Stony Creek. The proposed project will require a Construction in a Floodway Permit from the Indiana Department of Natural Resources – Division of Water.

IDEM Section 401 Water Quality Certification: The preferred alternative will require Section 401 Water Quality Certification from the Indiana Department of Environmental Management.

US Army Corps of Engineers Section 404 Permit: The preferred alternative will require a Section 404 permit from the Louisville District, U.S Army Corps of Engineers.

IDEM Rule 5 Permit: Since the project will disturb greater than one acre, Rule 5 administered through the Indiana Department of Environmental Management will apply to this project. The designer shall coordinate all erosion and sediment control measures with the Hamilton County Soil and Water Conservation District.

VIII. DRAINAGE

The existing drainage on Pleasant Street is conveyed on the northwest leg of the intersection by sheet draining the pavement into the ditch which flows into the ditch along SR 37. All the other legs on Pleasant Street are conveyed by sheet draining the pavement to outside curb and gutters. Curb and gutter inlets are utilized to capture the storm water which flow toward SR 37 and drain into the ditches along SR 37. On mainline SR 37, the existing drainage is conveyed by an open grass median and outside ditches flowing north to an unnamed tributary to Stony Creek about 1060 feet north of the intersection.

The proposed drainage on Pleasant Street will utilize an enclosed storm sewer system consisting of curb and gutter inlets spaced appropriately which will connect to manholes. These manholes will then convey the water to an outside ditch along SR 37 where there is positive drainage from the ditch to the unnamed tributary to Stony Creek approximately 1060 feet north of the intersection. The drainage on SR 37 will be handled similarly. Inlets will be spaced along both sides of the median barrier as well as on the outsides against the walls. The inlets that are within the limits of the depressed profile will be conveyed by manholes to a lift station.

The lift station will be located in the northwest quadrant between the ramp and the wall on SR 37. A 20-inch forcemain is proposed between the wet well and the discharge location approximately 1060 feet north of the intersection out to the outlet stream. The proposed lift station will include two centrifugal submersible pumps for stormwater runoff installed within a precast concrete wet-well. An additional precast concrete valve vault will be installed adjacent to the wet well. An above grade control panel will be mounted on a pedestal at a discrete location near the lift station and a generator will be included for emergency backup power. The lift station will have a firm pumping capacity (one pump out of service) of 6,400 gpm.

IX. UTILITY COORDINATION

The following paragraphs give details pertaining to the presence of utilities at Pleasant Street and SR 37. This is followed by a discussion of potential impacts resulting from the project.

Existing Facilities

UNITED conducted a site visit to identify existing utilities. Based on observations of above ground facilities (ie, manholes, valve boxes, pedestals, utility markers), we identified likely underground facilities. If more accurate information is required, "Holey Moley" or the individual utilities can be contacted.

Electric: Overhead electric transmission and distribution runs along the south side of Pleasant Street, west of SR 37. From the southwest corner of the intersection, the overhead transmission runs north along the west side of SR 37 to Clover Road. The guy wires for the transmission poles on the southwest corner cross over Pleasant Street to the anchor poles on the northwest corner. The overhead distribution crosses over SR 37 to the southeast corner, where it proceeds north along the east side of SR 37 for approximately 600 feet before crossing back to the west side of SR 37. There is no overhead electrical on Pleasant Street east of SR 37. Electrical service to property owners is underground.

Gas: A gas pipeline is located on the south side of Pleasant Street with service laterals to properties on both sides of the street.

Telecommunication: Various telecommunications facilities are located on the overhead electrical, with underground service to properties on both sides of the street.

Water: The water main is on the north side of Pleasant Street with service laterals to properties on both sides of the street.

Sanitary: There is no evidence of a sanitary sewer system.

Street Lighting: Cobra-style street lights are located on the north side of Pleasant Street, west of SR 37. The spacing is approximately 200 feet. Decorative street lights are located around the roundabout, east of SR 37.

Impacts

The preferred alternative has Pleasant Street going over SR 37 and connecting to the existing roundabouts on east side and the proposed roundabout at Clover Road (west of SR 37). Minor relocation work on Pleasant Street is expected based on relatively small change in profile grade.

The proposed lowering of SR 37 could impact the overhead electric transmission and distribution based on the proposed right-of-way on the west side of SR 37. Typically, overhead electrical transmission lines are located in easements due to the additional height of the facility and the complexity of the service. It is expected that this facility is in an easement. The anticipated reimbursable relocation cost to obtain new easements and to relocate this facility overhead within the new easement is $750,000.

All other existing utilities appear to be in the existing right-of-way and are not eligible for reimbursement of relocation costs.

X. PROPOSED INTERSECTION FACILITY

SR 37

Existing SR 37 is a four lane expressway with four 12-foot travel lanes, four foot inside shoulders, and ten foot outside shoulders. The northbound and southbound travel lanes are separated by a 50 foot open grass median (inside travel lane to inside travel lane). The existing right-of-way along SR 37 varies from mostly 85 feet to 95 feet from centerline on both sides. Many businesses line each side of the SR 37 right-of-way throughout the Study limits. The interchanges proposed in this Study require auxiliary lanes, ramp junctions, and ramp lanes adjacent to SR 37 travel lanes approaching each interchange from each side. Additional right-of-way will be required in many locations adjacent to ramp lanes and junctions. In an effort to minimize the amount of right-of-way required and the impacts to existing businesses, it is proposed that the SR 37 median be enclosed with a center median barrier and the SR 37 travel lanes be shifted in to narrow the width of the roadway through the interchange limits.

A 14.5 foot median is proposed, consisting of six foot inside shoulders and a 2.5 foot median barrier wall. Six foot is the desirable inside shoulder width required using Table 53-6 from the Indiana Design Manual (IDM). See the typical cross sections in this Study for full roadway dimensions. If any, one isolated interchange is constructed, the SR 37 travel lanes would shift back out on the north and south sides of the interchange to match the existing travel lanes and median width. As consecutive interchanges are constructed, it will not be feasible to shift lanes out to the existing median width and back in between most interchanges. If all interchanges were built concurrently, the median would remain enclosed from the south side of 126th Street to the north side of 146th Street, and from the south side of Town & Country Boulevard to the north side of SR 32 / SR 38. As there is sufficient distance between 146th Street and Greenfield Avenue, the travel lanes north of 146th Street could shift out the existing median width even if the 146th Street and Greenfield Avenue interchanges were constructed at the same time or consecutively. Furthermore, because of the layout and surrounding parcels at Greenfield Avenue, it is feasible to maintain the existing open median width through this location even when the proposed interchange is constructed. Where this is cost prohibitive at other locations due to right-of-way and business impacts associated with the wider roadway, it is economically feasible at the Greenfield Avenue Interchange. The travel lanes would shift back into an enclosed median south of Town and Country Boulevard and remain enclosed to north of SR 32 / SR 38, where the lanes would shift back out to meet the existing pavement.

This Study focuses on the interchanges; however the treatment of SR 37 proper, between the interchanges will be affected by each interchange's traffic and proximity to each other. The geometrics developed for this Study are unique to each area between interchanges according the findings of the Traffic Operations Analysis (TOA) conducted as part of this Study. In each segment between interchanges, in both directions, there will be an entrance ramp junction from one interchange followed by an exit ramp junction to the next interchange. This creates weaving areas between the interchanges, which were analyzed in the TOA. Some weaving

areas were acceptable and are recommended. Other weaving areas are not acceptable and have been removed by interconnecting consecutive interchanges with collector distributor lanes. See the TOA for the discussion and results of the weaving analysis conducted between interchanges. Below is a summary of the proposed configuration of SR 37 near Pleasant Street:

Between Town and Country Boulevard and Pleasant Street

The northbound weaving segment is acceptable; however the southbound weaving segment fails. The northbound entrance ramp from Town and Country Boulevard and the northbound exit ramp to Pleasant Street will be conventional entrance and exit ramps. There will be a continuous auxiliary lane between the interchanges in the northbound direction. In the southbound direction, a continuous collector-distributor (CD) lane will be used to interconnect the interchanges. Only the southbound exit to Town and Country Boulevard is proposed, exiting to the CD. Traffic wishing to enter southbound SR 37 from Pleasant Street will travel through the CD and enter south of Town and Country Boulevard.

Between Pleasant Street and SR 32 / SR 38

Both northbound and southbound weaving segments fail. A continuous collector-distributor (CD) lane will be used in each direction to interconnect the interchanges. In the northbound direction, only the northbound exit ramp to SR 32 / SR 38 is proposed, exiting to the CD. Traffic wishing to enter northbound SR 37 from Pleasant Street will travel through the CD to enter north of SR 32 / SR 38. In the southbound direction, only the southbound entrance from SR 32 / SR 38 is proposed, exiting from the CD. Traffic wishing to exit southbound SR 37 to Pleasant Street will exit at SR 32 / SR 38 and travel through the CD to Pleasant Street.

Cherry Street – Cherry Street will not be a full access interchange; however will be connected to the southbound CD between SR 32 / SR 38 and Pleasant Street. Eastbound traffic on Cherry Street will maintain the options to go south on Noble Creek Drive, or north on Cumberland Road prior to SR 37, however traffic entering SR 37 from Cherry Street will be forced to travel south within the CD between SR 32 / SR 38 and Pleasant Street. Traffic wishing to enter southbound SR 37 from eastbound Cherry Street will travel through the CD and enter south of Pleasant Street. Traffic wishing to enter northbound SR 37 from eastbound Cherry Street will travel north on Cumberland Road to SR 32 / SR 38, east on SR 32 / SR 38 through the interchange, and enter northbound SR 37 north of SR 32 / SR 38.

Pleasant Street

The preferred alternate for this intersection is to construct a “teardrop” roundabout interchange on Pleasant Street consisting of two closely spaced roundabouts on either side of SR 37, which are tied together through the middle to function as one unit. Pleasant Street will overpass SR 37. SR 37 will be free-flow through this interchange and traffic traveling through on Pleasant Street will drive through the roundabouts with a yield condition on the roundabout approach.

The layout of the ramps will closely resemble a tight diamond interchange with directional entrance and exit ramps in each quadrant. Beyond the back of the gore area, all four ramps will remain directly adjacent to SR 37 maintaining an approximate 22 foot offset from outside edge of the SR 37 travel lane to the inside edge of the ramp lane(s). This offset allows for the minimum outside mainline shoulder, minimum inside ramp shoulder and the wall in between the mainline and the ramps. This wall is necessary to maintain the elevation difference between the mainline and the ramps as they approach Pleasant Street. Exterior walls will also be necessary in each quadrant to minimize impacts to businesses in these quadrants (See aerial sheets for estimated wall limits).

Pleasant Street will have two lanes in each direction through the east/west portion of the roundabouts. On both approaches there will be one shared left/through lane, and one shared through/right lane. Both exit ramps will exit as one lane and develop into two lanes at the roundabout approach, consisting of one shared left/through lane and one right turn lane. Both entrance ramps will be one lane entrances. For a diagram of the proposed lane configuration see the Traffic Operations Analysis (binder labeled Traffic Operation Analysis).

All current drive accesses off Pleasant Street can be perpetuated with the interchange design.

XI. PROPOSED BRIDGE FACILITY

The bridge will be designed to meet or exceed the current “AASHTO LRFD Bridge Design Specifications” as supplemented by INDOT design standards. The minimum vertical clearance for roadways crossing over SR 37 is 16’-6”.

The proposed bridge over SR 37 at Pleasant Street is anticipated to be a two span, 118 foot long, prestressed reinforced concrete I beam structure built with no skew to the roadway. The bridge will be a four lane roundabout facility with a clear roadway width of 202’-10” and an out to out coping of 206’-2”. The bridge will be designed to span the four lane SR 37 divided highway with the interior pier placed in the median of SR 37. It is anticipated that the proposed structure will be constructed with integral end bents on piles and a concrete interior wall pier on piles. The structure will also have reinforced concrete approach slabs to provide a smooth transition from the approach roadway to the bridge and to protect the ends of the bridge from settlement and erosion. The proposed bridge will include common height concrete bridge rail with transitions, approach guardrail and end treatments to meet current minimum standards.

XII. MAINTENANCE OF TRAFFIC

The following is a logical basic MOT plan for the construction of the Pleasant Street interchange:

Phase 1 – The southbound SR 37 travel lanes will be widened to the inside with temporary widening. Temporary cross-overs will be constructed in the median to the north and south of the interchange.

Phase 2 – All SR 37 traffic will run on the southbound side with two travel lanes in each direction. The southbound travel lanes will be shifted west to run on the existing outside

shoulder. The northbound traffic will be switched over to the southbound side to run on the temporary widening constructed in phase 1.

The northbound half of mainline SR 37 will be constructed. A temporary cut wall will be constructed "top down" between the existing southbound lanes and the proposed northbound lanes through the interchange area where SR 37 will be depressed.

The northbound exit and entrance ramps will be constructed up to the proposed roundabout. A temporary connection will be constructed across the proposed roundabout area connecting the top of the northbound exit ramp and the top of the northbound entrance ramp.

The east end bent for the proposed bridge will also be constructed in this phase.

The east segment of Pleasant Street will be closed, with no access to SR 37. The east segment of Pleasant Street and roundabout approaches will be constructed.

The west segment of the Pleasant Street will maintain access to SR 37. This could be set up as right-in/right-out access to and from Pleasant Street with SR 37 traffic remaining free-flow through the intersection. Alternatively, a temporary signal could be utilized to allow the west Pleasant Street protected access to and from both directions of SR 37.

Phase 3 – All SR 37 traffic will run on the proposed northbound lanes and shoulders constructed in phase 2, with two lanes in each direction. The southbound lanes will be switched over to the northbound side to run on the proposed northbound lanes constructed in phase 2. The northbound lanes will run up the proposed northbound exit ramp, across the temporary connection, and back down the proposed northbound entrance ramp all constructed in phase 2.

The southbound half of mainline SR 37 will be constructed, as well as the west segment of Pleasant Street and the west roundabout. Both sides of Pleasant Street will have no access to or from SR 37 in this phase. However, temporary connections could be constructed on the east side between the portion of the east Pleasant Street segment constructed in phase 2 and the northbound SR 37 travel lanes. If desired, this could be done to keep access to and from northbound SR 37 and the east side of Pleasant Street in this phase.

XIII. LAND ACQUISITION

Approximately 16 parcels would be impacted by the construction of the teardrop roundabout interchange at the intersection of SR 37 and Pleasant Street. Total permanent right of way acquisition required for construction of these improvements would be approximately 3.0 acres.

Because the project would likely utilize federal aid, future land acquisition would need to adhere to the *Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs Act*. This process includes title research, right-of-way engineering, appraisal problem analysis (APA), an appraisal, a review appraisal and negotiations/buying with the property owner.

All existing right-of-way would be verified during the land acquisition process, which may reveal the need for additional parcels. If recorded documents do not exist, it may be necessary to reacquire portions of the apparent existing right-of-way, which could also increase the anticipated number of parcels and costs affiliated with those additional parcels.

XIV. PROJECT PRIORITIES

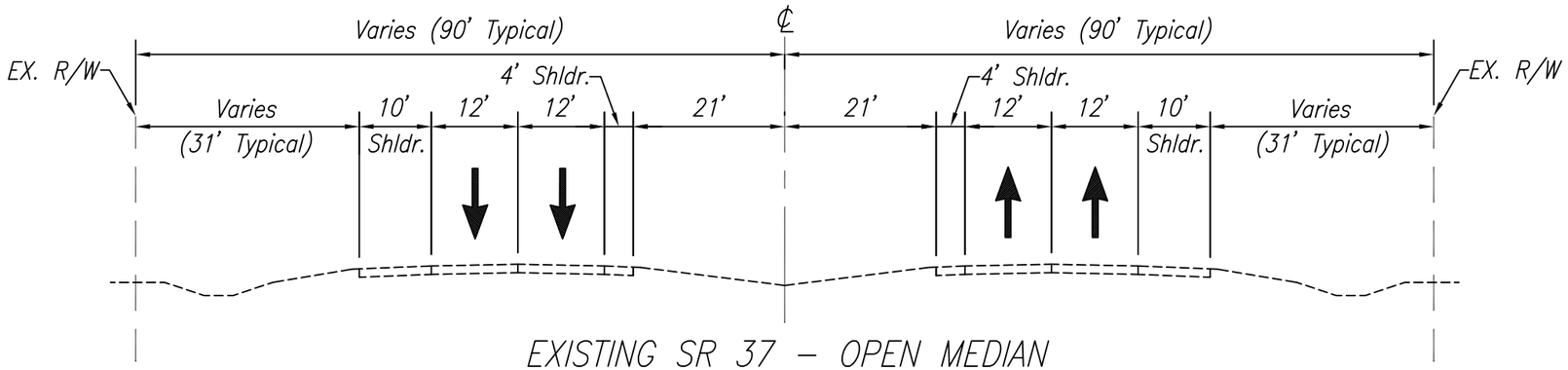
Table 3 below indicates the priority for construction of the proposed improvements. The ranking as shown generally flows south to north but can be revised without affecting the integrity of constructing methodologies.

Table 3 – Construction Priorities

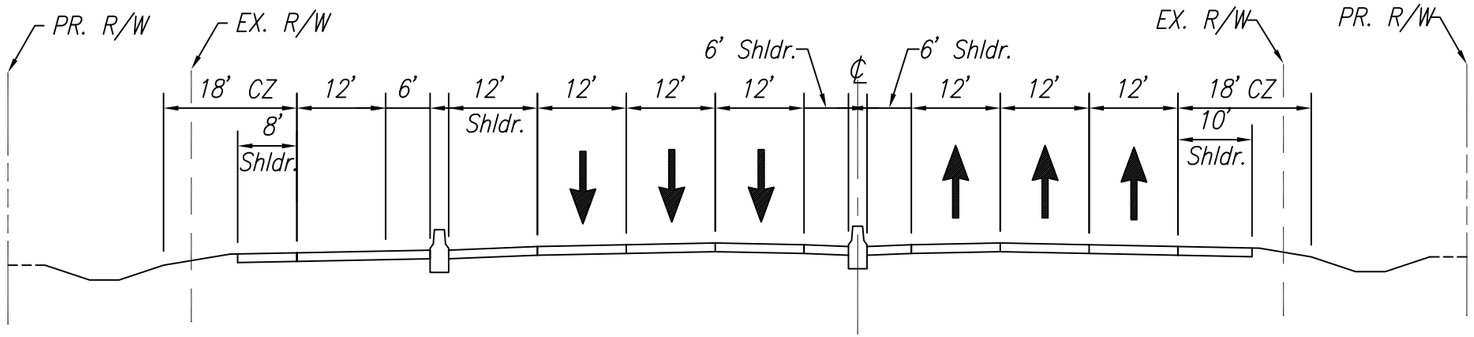
Priority Rank	Binder Number	Intersection
1.	5	SR 37 at 146th Street
2.	10	146th Street at Allisonville Road
3.	1	SR 37 at 126th Street
4.	2	SR 37 at 131st Street
5.	3	SR 37 at 135th Street
6.	4	SR 37 at 141st Street
7.	6	SR 37 at Greenfield Avenue
8.	7	SR 37 at Town and Country Boulevard
9.	**8**	**SR 37 at Pleasant Street**
10.	9	SR 37 at SR 32 / SR 38

XV. PROJECT BUDGET

At the intersection of SR 37 and Pleasant Street, a teardrop roundabout interchange is proposed, with a 4-lane bridge crossing SR 37. In order to construct these improvements, it is anticipated that construction cost will be $25,939,415 in year 2026.

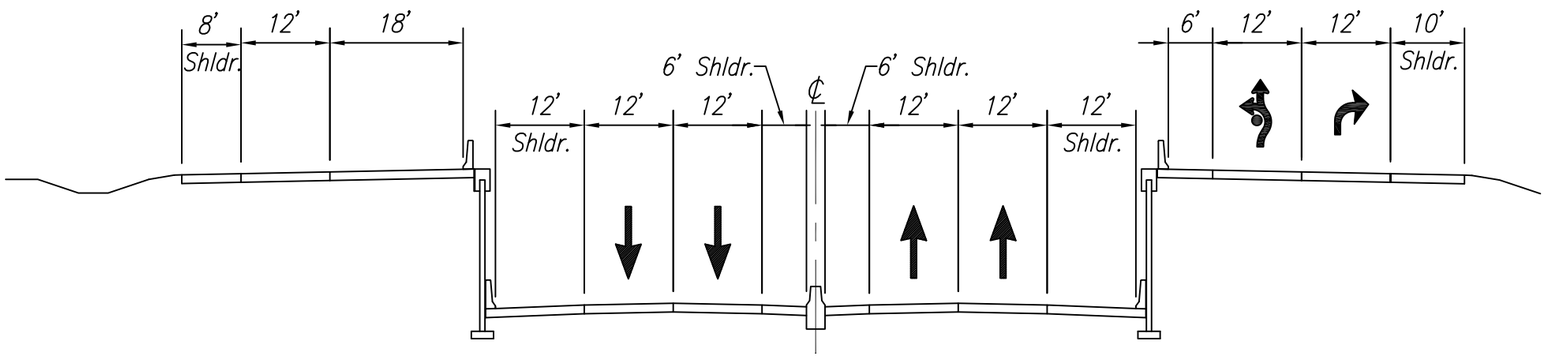


EXISTING SR 37 – OPEN MEDIAN



PROPOSED SR 37 – CLOSED MEDIAN

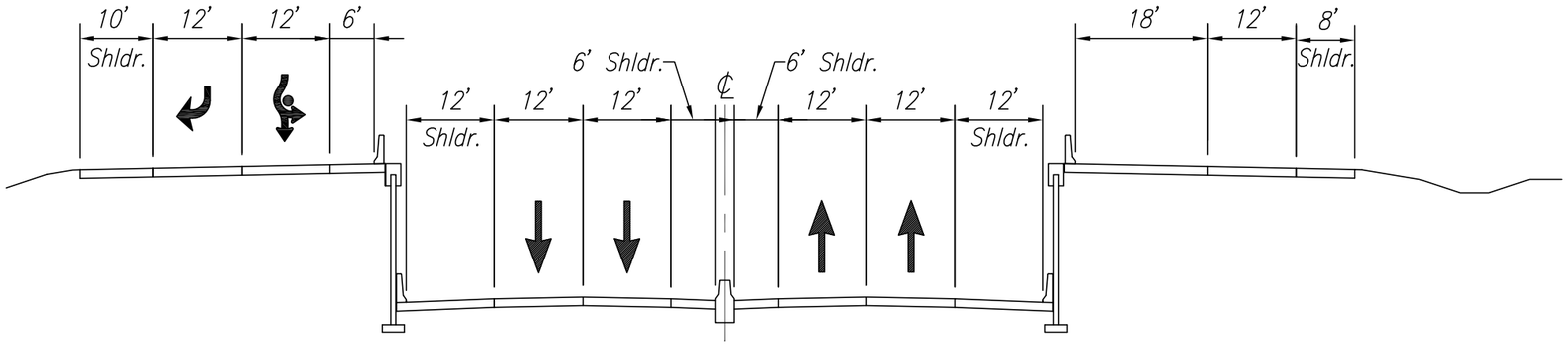
South of Pleasant Street



PROPOSED SR 37 – WITH CD LANES

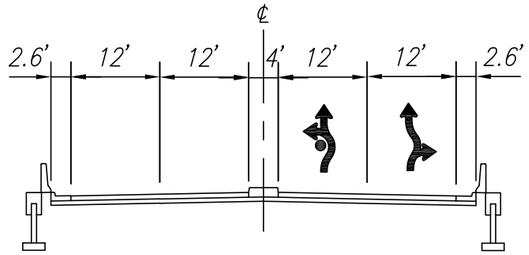
Immediately South of Pleasant Street

TYPICAL SECTIONS
Pleasant Street and S.R. 37



PROPOSED SR 37 – WITH CD LANES

Immediately North of Pleasant Street

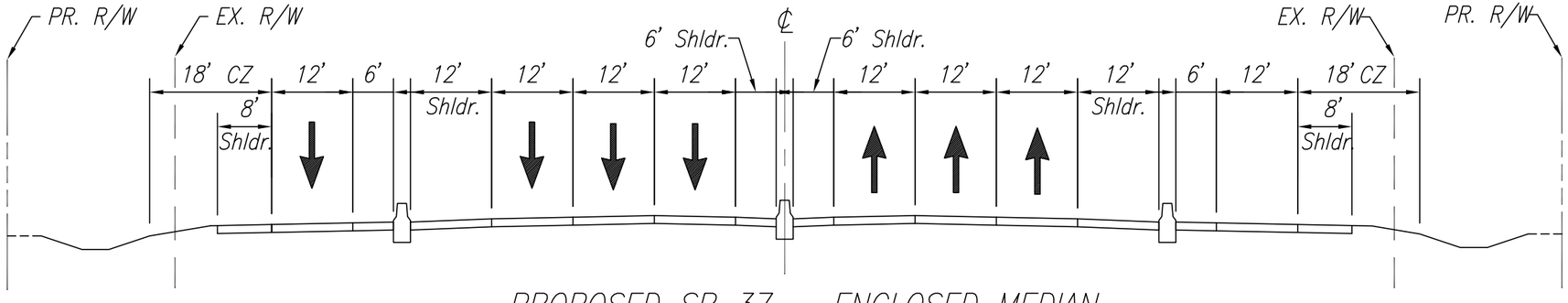


PROPOSED Pleasant Street

East leg approaching intersection

PROPOSED Pleasant Street

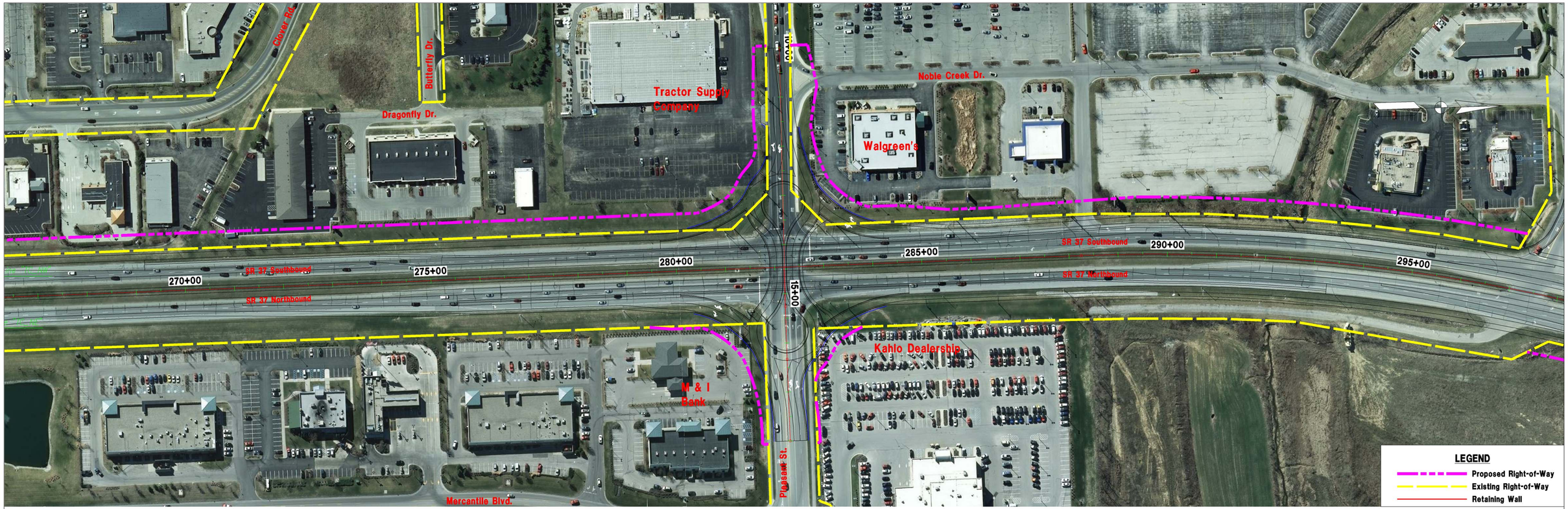
East leg departing intersection

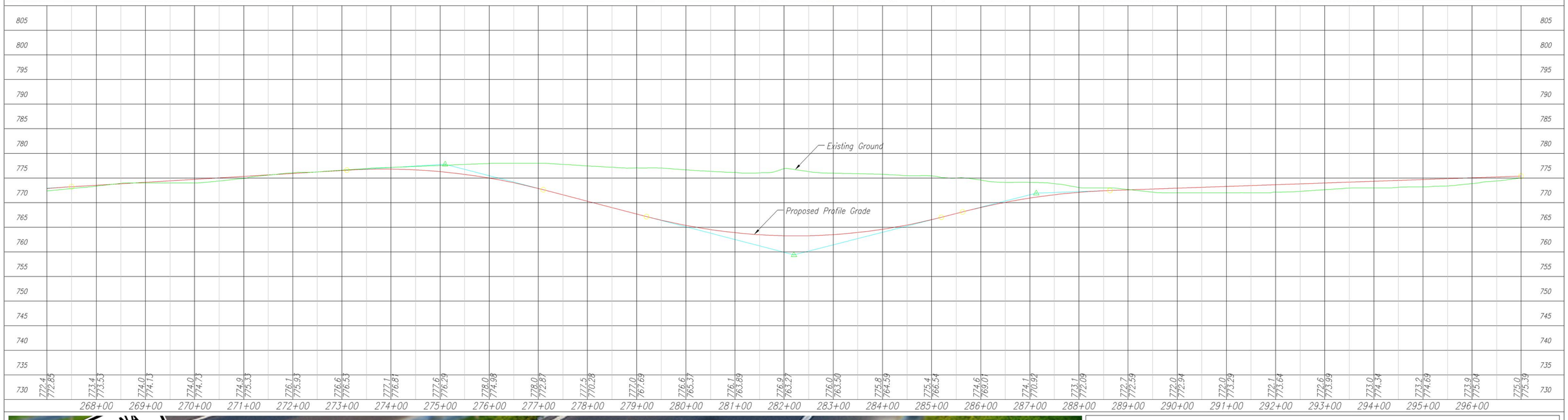


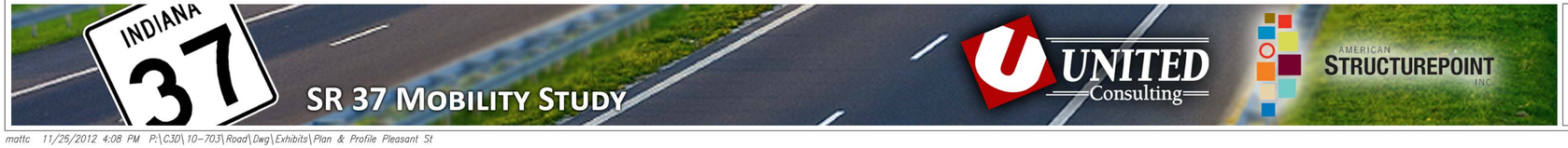
PROPOSED SR 37 – ENCLOSED MEDIAN

North of Pleasant Street

TYPICAL SECTIONS
Pleasant Street and S.R. 37







PROPOSED TEARDROP ROUNDABOUT INTERCHANGE SR 37 & PLEASANT STREET

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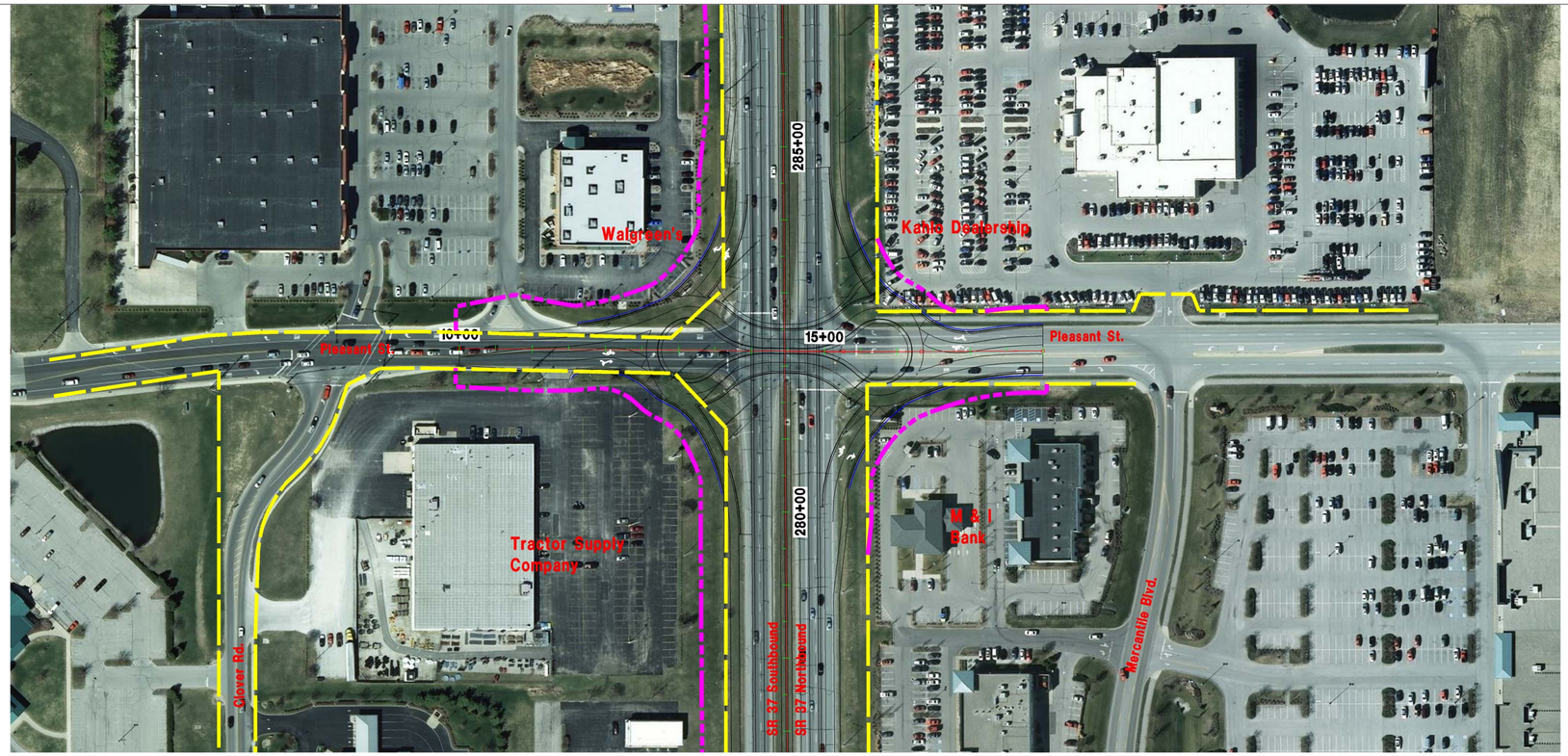
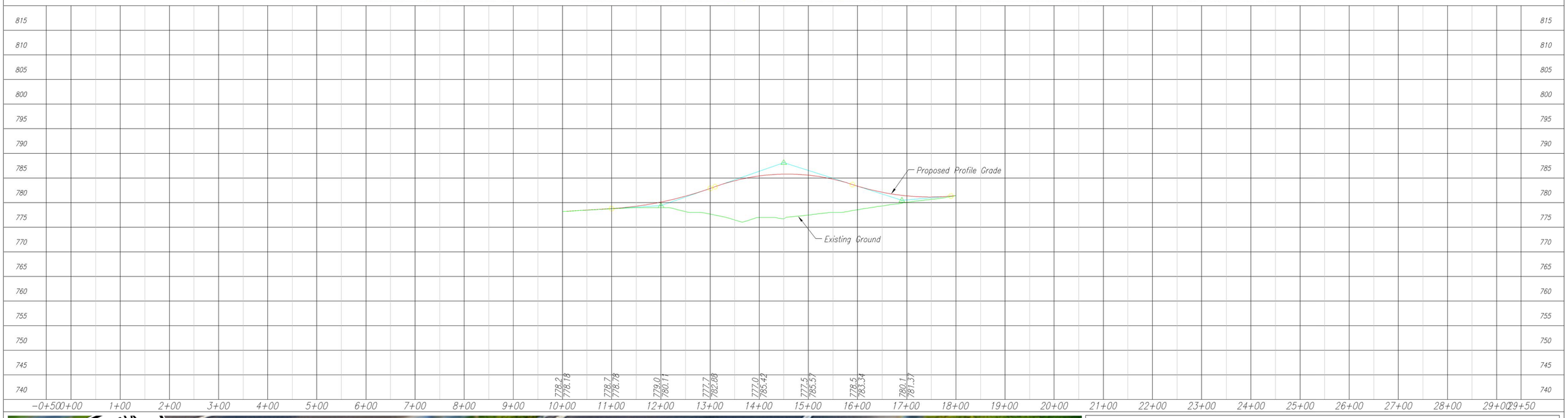


LEGEND

- Proposed Right-of-Way
- Existing Right-of-Way
- Retaining Wall



INDIANA 37

SR 37 MOBILITY STUDY

UNITED Consulting

AMERICAN STRUCTUREPOINT INC.

PROPOSED TEARDROP ROUNDABOUT INTERCHANGE PLEASANT STREET & SR 37

mattc 11/25/2012 4:08 PM P:\C30\10-703\Road\Dwg\Exhibits\Plan & Profile Pleasant St

Pleasant Street Project Development Cost Summary

SR 37 MOBILITY STUDY

Hamilton County, Town of Fishers and City of Noblesville

S.R. 37 from South of 126th Street to North of SR 38/32

PROJECT ITEMS:		PROJECT COST (IN YEAR OF EXPENDITURE)
PLEASANT STREET		
Engineering Costs	$ 3,810,500	
Construction Costs	$ 25,939,415	
Construction Cost Contingencies	$ 2,593,941	
Construction Inspection Costs	$ 3,890,912	
Utility Relocation Cost	$ 1,162,500	
Land Cost	$ 1,723,455	
Subtotal Pleasant Street Interchange		$35,310,223

* The Pleasamt Street Interchange is projected to be constructed in 2026. An inflation factor of 1.558 has been applied to obtain the construction cost shown in this table

TOTAL INTERCHANGE COST: $35,310,223

Pleasant Street Construction Cost Summary

SR 37 MOBILITY STUDY

Hamilton County, Town of Fishers and City of Noblesville

S.R. 37 from South of 126th Street to North of SR 38/32

MAJOR ELEMENT		BASE YEAR CONSTRUCTION COST (2012)
ROADWAY	$	12,279,175
GEOTECHNICAL MITIGATION	$	500,000
BRIDGE (Pleasant Street Over S.R. 37)	$	2,750,000
LIFT STATION	$	1,120,000
TOTAL CONSTRUCTION COST:	**$**	**16,649,175**

ROAD ESTIMATE

Project: ***SR 37 Mobility Study - Pleasant St***
Location: ***Pleasant St Interchange***
County: ***HAMILTON***
District: ***Greenfield***

Project ID:***10-703 (8)***
Bid Date: ***/ /***
State: ***IN***
Route: ***SR 37***

Sect	Pay Item	Description	Quantity	Unit	Bid Price	Extension	Alt
100	105-06845	construction engineering	1.000	L.S.	328,906.47	328,906.47	
100	110-01001	mobilization and demobilization	1.000	L.S.	548,177.46	548,177.46	
		GENERAL PROVISIONS SUBTOTALS				**877,083.93**	
						7.1%	
200	201-52370	clearing right of way	1.000	L.S.	176,848.63	176,848.63	
200	202-02279	curb and gutter, remove	1,112.000	L.F.	4.62	5,137.44	
200	202-52710	sidewalk, concrete, remove	499.000	SYS	7.88	3,932.12	
200	202-93999	signal pole, remove	4.000	EACH	495.00	1,980.00	
200	202-99187	fence, farm field, remove	530.000	L.F.	1.72	911.60	
200	203-02000	excavation, common	75,263.000	C.Y.	7.88	593,072.44	
200	205-06931	temporary check dam, revetment riprap	273.000	TON	38.84	10,603.32	
200	205-06937	temporary silt fence	500.000	L.F.	1.74	870.00	
200	207-08263	subgrade treatment, type ia	51,076.000	SYS	6.24	318,714.24	
200	207-08267	subgrade treatment, type iiia	65.000	SYS	9.42	612.30	
200	211-09194	b borrow	53,741.000	TON	34.00	1,827,194.00	
200	211-09264	structural backfill, type 1	847.000	C.Y.	23.88	20,226.36	
200	211-09266	structural backfill, type 3	24,736.000	C.Y.	21.27	526,134.72	
		EARTHWORK SUBTOTALS				**3,486,237.17**	
						28.4%	
300	301-07448	compacted aggregate, no. 53, base	3,090.000	TON	15.66	48,389.40	
300	302-06464	subbase for pccp	12,769.000	C.Y.	28.39	362,511.91	
300	303-01180	compacted aggregate, no. 53	1,597.000	TON	17.20	27,468.40	
		AGGREGATE PAVEMENT AND BASES SUBTOTALS				**438,369.71**	
						3.6%	
400	402-10084	hma for temporary pavement, b	5,065.000	TON	50.00	253,250.00	
		ASPHALT PAVEMENT SUBTOTALS				**253,250.00**	
						2.1%	
500	501-06266	profilograph, pccp	1.000	L.S.	15,000.00	15,000.00	
500	501-06323	qc/qa-pccp, 12 in	43,957.000	SYS	70.00	3,076,990.00	
500	503-05240	d-1 contraction joint	21,979.000	L.F.	9.19	201,987.01	
		CONCRETE PAVEMENT SUBTOTALS				**3,293,977.01**	
						26.8%	
600	601-01522	guardrail, transition type tgb	4.000	EACH	1,978.24	7,912.96	
600	601-94689	guardrail end treatment, os	4.000	EACH	2,530.55	10,122.20	
600	601-99105	guardrail, w-beam, 6 ft 3 in spacing	2,830.000	L.F.	17.42	49,298.60	
600	602-08603	concrete barrier, 45 in	4,073.000	L.F.	91.00	370,643.00	
600	603-06040	fence, farm field, 47 in	4,373.000	L.F.	5.50	24,051.50	
600	604-07569	pavers {pavers}	491.000	SYS	827.77	406,435.07	
600	605-06120	curb, concrete	619.000	L.F.	23.58	14,596.02	
600	605-06140	curb and gutter, concrete	2,561.000	L.F.	14.29	36,596.69	
600	605-06145	curb and gutter, b, concrete	846.000	L.F.	14.17	11,987.82	
600	605-06255	center curb, d, concrete	463.000	SYS	48.55	22,478.65	
600	610-09108	pccp for approaches, 9 in	65.000	SYS	57.06	3,708.90	
600	615-06510	monument, c	4.000	EACH	419.32	1,677.28	
600	615-06515	monument, d	28.000	EACH	141.25	3,955.00	

Project: ***SR 37 Mobility Study - Pleasant St***
Location: ***Pleasant St Interchange***
County: ***HAMILTON***
District: ***Greenfield***

Project ID:***10-703 (8)***
Bid Date: ***/ /*** State: ***IN***
Route: ***SR 37***

Sect	Pay Item	Description	Quantity	Unit	Bid Price	Extension	Alt
600	616-02320	geotextiles	368.000	SYS	2.51	923.68	
600	616-06405	riprap, revetment	208.000	TON	29.36	6,106.88	
600	621-01004	mobilization and demobilization for seeding	4.000	EACH	382.61	1,530.44	
600	621-06545	fertilizer	4.000	TON	327.69	1,310.76	
600	621-06554	seed mixture, u	881.000	LBS	5.62	4,951.22	
600	621-06557	seed mixture, t	389.000	LBS	2.15	836.35	
600	621-06565	mulching material	16.000	TON	305.97	4,895.52	
600	621-06567	water	10.000	M.G.	3.74	37.40	
600	621-06574	sodding	2,360.000	SYS	3.12	7,363.20	
600	628-09403	field office, c	18.000	MONTH	2,082.44	37,483.92	
600	628-11068	cellular telephone/radio	2.000	EACH	150.38	300.76	
600	628-11069	cellular telephone/radio service, anytime minutes	36.000	MONTH	112.11	4,035.96	
		INCIDENTAL CONSTRUCTION SUBTOTALS				**1,033,239.78**	
						8.4%	
700	701-90386	temporary sheet piling	1.000	L.S.	308,925.00	308,925.00	
700	706-08496	reinforced concrete moment slab, 12 in	2,352.000	SYS	87.86	206,646.72	
700	706-09545	coarse aggregate, no 8	588.000	C.Y.	61.00	35,868.00	
700	706-09959	railing, concrete, ft	6,164.000	L.F.	60.00	369,840.00	
700	715-05048	pipe, type 4 circular 6 in	10,658.000	L.F.	3.24	34,531.92	
700	715-05053	pipe, underdrain, outlet 6 in	243.000	L.F.	11.77	2,860.11	
700	715-05149	pipe, type 2 circular 12 in	5,593.000	L.F.	29.00	162,197.00	
700	715-06337	pipe extension, circular, 48 in	49.000	L.F.	170.00	8,330.00	
700	715-09064	video inspection for pipe	5,593.000	L.F.	1.48	8,277.64	
700	718-06528	outlet protector, 1	9.000	EACH	519.56	4,676.04	
700	718-06532	video inspection for underdrains	3,000.000	L.F.	0.94	2,820.00	
700	718-52610	aggregate for underdrains	960.000	C.Y.	32.72	31,411.20	
700	718-99153	geotextiles for underdrain	7,303.000	SYS	0.98	7,156.94	
700	720-07300	inlet, type h, with slotted drain	12.000	EACH	4,502.79	54,033.48	
700	720-07302	inlet, type ha, with slotted drain	12.000	EACH	1,757.87	21,094.44	
700	720-45410	manhole, c4	12.000	EACH	2,000.00	24,000.00	
700	720-98174	inlet, b15	12.000	EACH	2,189.87	26,278.44	
700	720-98555	inlet, c15	12.000	EACH	2,161.77	25,941.24	
700	731-93945	face panels, concrete	56,235.000	S.F.	11.99	674,257.65	
700	731-93946	wall erection	56,235.000	S.F.	5.56	312,666.60	
700	731-93947	leveling pad, concrete	3,864.000	L.F.	22.00	85,008.00	
		STRUCTURES SUBTOTALS				**2,406,820.42**	
						19.6%	
800	801-01093	temporary worksite speed limit sign assembly	4.000	EACH	723.00	2,892.00	
800	801-03290	construction sign, c	2.000	EACH	199.19	398.38	
800	801-04308	road closure sign assembly	4.000	EACH	308.61	1,234.44	
800	801-06625	detour route marker assembly	18.000	EACH	98.84	1,779.12	
800	801-06640	construction sign, a	24.000	EACH	160.87	3,860.88	
800	801-06645	construction sign, b	4.000	EACH	58.33	233.32	

Project: ***SR 37 Mobility Study - Pleasant St***
Location: ***Pleasant St Interchange***
County: ***HAMILTON***
District: ***Greenfield***

Project ID:***10-703 (8)***
Bid Date: ***/ /***
State: ***IN***
Route: ***SR 37***

Sect	Pay Item	Description	Quantity	Unit	Bid Price	Extension	Alt
800	801-06710	flashing arrow sign	510.000	DAY	8.52	4,345.20	
800	801-06775	maintaining traffic	1.000	L.S.	219,270.98	219,270.98	
800	801-07024	energy absorbing terminal, cz, tl-3	1.000	EACH	7,316.67	7,316.67	
800	801-07118	barricade, iii-a	228.000	L.F.	13.17	3,002.76	
800	801-07119	barricade, iii-b	48.000	L.F.	14.08	675.84	
800	801-08400	temporary traffic barrier, type 1	2,600.000	L.F.	16.86	43,836.00	
800	801-08507	temporary traffic barrier, type 1, anchored	296.000	L.F.	34.09	10,090.64	
800	801-08508	temporary traffic barrier, type 2, anchored	2,600.000	L.F.	25.00	65,000.00	
800	801-09133	temporary changeable message sign	2.000	EACH	6,193.01	12,386.02	
800	801-52817	temporary crossover, b	2.000	EACH	25,000.00	50,000.00	
800	802-05701	sign post, square, type 1, reinforced anchor base	340.000	L.F.	12.95	4,403.00	
800	802-07057	sign, panel, with legend	429.000	S.F.	14.81	6,353.49	
800	802-07138	wide flange sign post support foundation, ix	2.000	EACH	242.00	484.00	
800	802-07159	cantilever sign support foundation, ii	2.000	EACH	3,349.33	6,698.66	
800	802-09840	sign, sheet, with legend 0.100 in thickness	115.000	S.F.	17.27	1,986.05	
800	802-76095	structural steel, breakaway	681.000	LBS	2.68	1,825.08	
800	802-76135	overhead sign structure, cantilever single arm	1.000	EACH	20,672.20	20,672.20	
800	804-06770	delineator post	9.000	EACH	43.14	388.26	
800	808-10031	line, multi-component, broken, white, 4 in	1,771.000	L.F.	0.43	761.53	
800	808-10033	line, multi-component, solid, white, 4 in	10,435.000	L.F.	0.46	4,800.10	
800	808-10034	line, multi-component, solid, yellow, 4 in	10,573.000	L.F.	0.46	4,863.58	
800	808-10037	line, multi-component, solid, white, 8 in	1,028.000	L.F.	1.04	1,069.12	
800	808-75071	pavement message marking, preformed plastic, lane indication arrow	8.000	EACH	187.00	1,496.00	
800	808-75510	transverse markings, preformed plastic, crosshatch line, white, 24 in	264.000	L.F.	12.09	3,191.76	
800	808-75998	snowplowable raised pavement marker	251.000	EACH	19.45	4,881.95	
		TRAFFICE CONTROL DEVICES AND LIGHTING SUBTOTALS				**490,197.03** **4.0%**	
		TOTALS				**12,279,175.05** **100.0%**	

BRIDGE ESTIMATE

JTB 11/26/12
JRC 11/26/12

PRICING REPORT

Date: 11/26/2012
Time: 15:23:02

Project: ***Pleasant St. over SR 37 - Concrete Bridge Option***
Location: ***Hamilton County***
County: ***HAMILTON***
District: ***Greenfield***

Project ID: ***10-703-PLEASANT ST O***
Bid Date: / /
State: ***IN***
Route:

Pay Item	Description	Quantity	Unit	Bid Price	Extension	Alt
105-06845	construction engineering	1.000	L.S.	75,361.00	75,361.00	
110-01001	mobilization and demobilization	1.000	L.S.	125,601.00	125,601.00	
203-02020	excavation, unclassified	557.000	C.Y.	20.83	11,602.31	
211-02050	b borrow	557.000	C.Y.	27.42	15,272.94	
302-07455	dense graded subbase	156.000	C.Y.	62.94	9,818.64	
609-06259	reinforced concrete bridge approach 12 in	939.000	SYS	83.33	78,246.87	
701-06011	dynamic pile load test	3.000	EACH	1,651.34	4,954.02	
701-08122	pile, steel pipe, 0.375", 14	5,580.000	L.F.	42.87	239,214.60	
701-09559	test pile, dynamic, restrike	3.000	EACH	1,317.82	3,953.46	
701-09690	test pile, dynamic, 14 in non-production	210.000	L.F.	42.87	9,002.70	
702-51005	concrete, a, substructure	300.000	C.Y.	584.17	175,251.00	
702-51015	concrete, b, footings	206.000	C.Y.	307.53	63,351.18	
703-06028	reinforcing bars	61,660.000	LBS	0.91	56,110.60	
703-06029	reinforcing bars, epoxy coated	443,858.000	LBS	0.95	421,665.10	
704-51002	concrete, c, superstructure	1,696.000	C.Y.	560.34	950,336.64	
706-09959	railing, concrete, ft	236.000	L.F.	64.42	15,203.12	
707-05983	structural member, concrete i-beam, 36 in x 12 in	2,680.000	L.F.	160.01	428,826.80	
709-51821	surface seal	1.000	L.S.	29,198.00	29,198.00	
	TOTALS				**2,712,969.98**	

LIFT STATION ESTIMATE

Pleasant Street Lift Station Cost Summary

GENERAL INFORMATION	
Intersection	Pleasant Street and S.R. 37
Station (of Lift Station)	282+20.53

DESIGN INFORMATION	
Storm Sewer Inflow Elev	759.3
Length to Outfall (ft)	1060.0
Outfall Elevation	760.00
High Point Station	273+85.22
High Point Elevation	776.82
Revised Outfall Elevation	772.82
Revised Distance to Outfall	835.0
Drainage Area (ac)	2.44
10-Year Flow Q_{10} (cfs)	10.50
50-Year Flow Q_{50} (cfs)	13.04
100-Year Flow Q_{100} (cfs)	14.12

CONSTRUCTION COST		
Estimated Lift Station Construction Cost	$	950,000.00
Estimated Force Main Construction Cost	$	170,000.00
Total Estimated Construction Cost	**$**	**1,120,000.00**

OPERATION & MAINTENANCE COST		
Operation	$	10,000.00
Maintenance	$	15,000.00
Equipment Replacement	$	15,000.00
Total Annual OM&R Cost	**$**	**40,000.00**

ROAD QUANTITIES

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *BWS* *3/27/12* *Checked By:* *ATW* *11/24/12*

105-06845 **CONSTRUCTION ENGINEERING** **1** **LS**

						LS
ENTIRE PROJECT						*1.0*
	Assume 3% of Total Project Cost					

TOTAL = ***1.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *BWS* *3/27/12* *Checked By:* *ATW* *11/24/12*

110-01001 **MOBILIZATION AND DEMOBILIZATION** **1 LS**

						LS
ENTIRE PROJECT						*1.0*
	Assume 5% of Total Project Cost					

TOTAL = ***1.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *BWS* *3/27/12* *Checked By:* *ATW* *11/24/12*

201-52370 **CLEARING RIGHT OF WAY** **1 LS**

						LS
ENTIRE PROJECT						*1.0*
	Assume a Lump Sum amount of $15k					

TOTAL = ***1.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: DJZ 4/11/12 *Checked By: BWS 11/24/12*

202-02279 **CURB AND GUTTER, REMOVE** **1,112 LFT**

Begin Station	*End Station*	*Side*				*LFT*
Pleasant St.						
10+00	*11+00*	*Rt.*				*100.0*
		Radius	*75.00*			*75.0*
15+58	*18+01*	*Rt.*				*243.3*
10+00	*13+33*	*Lt.*				*333.0*
		Radius	*75.00*			*75.0*
		Radius	*60.00*			*60.0*
		Length by AutoCAD	*55.00*			*55.0*
11+64	*13+34*	*Lt.*				*169.9*

TOTAL = ***1111.2***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: DJZ 4/11/12 Checked By: BWS 11/24/12

202-52710 **SIDEWALK, CONCRETE, REMOVE** **499 SYS**

Begin Station	Begin Width	End Station	End Width	Area (SFT)	Side	SYS
Pleasant St.						
10+00	5.00	11+01	5.00	505.00	Rt	56.1
15+31	5.00	18+01	5.00	1351.20	Rt	150.1
10+00	5.00	10+45	5.00	225.00	Lt	25.0
10+83	5.00	11+63	5.00	400.00	Lt	44.4
11+63	5.00	13+35	5.00	860.00	Lt	95.6
15+73	5.00	18+01	5.00	1141.20	Lt	126.8

TOTAL = 498.0

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *4/18/12* *Checked By:* *BWS* *11/24/12*

202-93999 **SIGNAL POLE, REMOVE** **4 EACH**

Station		***Side***				***EACH***
Pleasant						
36+04		*Lt*				*1.0*
36+04		*Rt*				*1.0*
15+24		*Lt*				*1.0*
15+24		*Rt*				*1.0*

TOTAL = ***4.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *4/11/12* *Checked By:* *BWS* *11/24/12*

202-99187 **FENCE, FARM FIELD, REMOVE** **530 LFT**

Begin Station	*End Station*	*Side*				*LFT*
SR 37	***Northbound***					
287+96	*293+25*	*Rt*				*529.8*

TOTAL = ***529.8***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 10/30/12 *Checked By: srp 11/26/12*

203-02000 **EXCAVATION, COMMON** **75,263 CYS**

STATION	*CUT AREA*	*CUT VOLUME*	*FILL AREA*	*FILL VOLUME*	*CUM. CUT VOLUME*	*CUM. FILL VOLUME*
	(sft)	*(cys)*	*(sft)*	*(cys)*	*(cys)*	*(cys)*
Line "A"						
268+42.63	*219.09*		*39.83*			
269+18.98	*219.09*	*619.54*	*39.83*	*112.63*	*619.54*	*112.63*
276+01.00	*200.48*	*5299.17*	*69.52*	*1381.09*	*5918.71*	*1493.72*
279+69.52	*1748.38*	*13299.89*	*742.70*	*5542.95*	*19218.59*	*7036.67*
284+71.51	*1745.72*	*32481.54*	*747.78*	*13855.67*	*51700.14*	*20892.34*
289+88.19	*247.16*	*19068.17*	*58.02*	*7710.01*	*70768.31*	*28602.35*
293+28.79	*247.16*	*3117.88*	*58.02*	*731.91*	*73886.18*	*29334.26*
					Earthwork Balance =	***44551.92***
Line "S-3-A"						
10+00.00	*83.30*		*6.37*			
11+61.85	*40.49*	*371.03*	*82.58*	*266.60*	*371.03*	*266.60*
13+15.94	*68.24*	*310.26*	*657.61*	*2112.15*	*681.29*	*2378.75*
13+87.70	*40.05*	*143.91*	*319.00*	*1297.81*	*825.19*	*3676.55*
13+87.70	*0.00*	*0.00*	*0.00*	*0.00*	*825.19*	*3676.55*
15+04.20	*0.00*	*0.00*	*0.00*	*0.00*	*825.19*	*3676.55*
15+04.20	*40.05*	*0.00*	*319.00*	*0.00*	*825.19*	*3676.55*
15+76.00	*68.24*	*143.99*	*657.61*	*1298.53*	*969.18*	*4975.08*
17+15.63	*40.49*	*281.15*	*82.58*	*1913.94*	*1250.33*	*6889.02*
17+99.70	*40.49*	*126.07*	*82.58*	*257.13*	*1376.40*	*7146.15*
					Earthwork Balance =	***-5769.75***
					Total Earthwork Balance =	***38782.17***
	<u>The Earthwork Balance indicates this is a WASTE job and no BORROW will be required.</u>					
	Common Excavation = Cumulative Cut Volume =				***75262.59***	
					TOTAL =	***75263.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: MAC 5/29/12 *Checked By: JPS 11/21/12*

205-06931 **TEMPORARY CHECK DAM, REVETMENT RIPRAP** **273 TON**

Begin Station	*End Station*	Spacing	Number of Dams	Weight		*TON*
S.R. 37	***Northbound***			**Tons/Dam**		
268+43	*280+00*	*100*	*12*	*6.5*		*78.0*
284+50	*293+30*	*100*	*9*	*6.5*		*58.5*
S.R. 37	***Southbound***					
268+43	*280+00*	*100*	*12*	*6.5*		*78.0*
284+50	*293+30*	*100*	*9*	*6.5*		*58.5*

TOTAL = 273.0

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *4/19/12* *Checked By:* *JPS* *11/21/12*

205-06937 **TEMPORARY SILT FENCE** **500 LFT**

						LFT
Use as areas fall away from jobsite.						*500.0*

TOTAL = ***500.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: SRS 5/15/12 *Checked By: ATW 11/25/12*

207-08263 **SUBGRADE TREATMENT, TYPE IA** **51,076 SYS**

Begin Station	*End Station*	*Side*	*Begin Width*	*End Width*	*Area (sft)*	*Area (sys)*
Pavement Area copied from 501-06323:						
						43956.1
Outside Area (2' on either side):						
Line "A"						
268+42.54	*270+14.50*	*Rt*	*2.00*	*2.00*	*343.92*	*38.2*
270+14.50	*275+52.48*	*Rt*	*2.00*	*2.00*	*1075.96*	*119.6*
275+52.48	*288+86.94*	*Rt*	*2.00*	*2.00*	*2668.92*	*296.5*
288+86.94	*289+88.09*	*Rt*	*2.00*	*2.00*	*202.30*	*22.5*
289+88.09	*293+28.79*	*Rt*	*2.00*	*2.00*	*681.40*	*75.7*
268+42.63	*269+18.98*	*Lt*	*2.00*	*2.00*	*152.70*	*17.0*
269+18.98	*273+81.00*	*Lt*	*2.00*	*2.00*	*924.04*	*102.7*
273+81.00	*274+81.00*	*Lt*	*2.00*	*2.00*	*200.00*	*22.2*
274+81.00	*286+37.37*	*Lt*	*2.00*	*2.00*	*2312.74*	*257.0*
286+37.37	*289+37.38*	*Lt*	*2.00*	*2.00*	*600.02*	*66.7*
289+37.38	*293+28.79*	*Lt*	*2.00*	*2.00*	*782.82*	*87.0*
Ramp "PLST_SE"						
10+00.00	*16+09.01*		*4.00*	*4.00*	*2436.04*	*270.7*
Add Extra 2' where there is curb on ramp						
Outside Ramp	*155.00*	*lft*	*4.00*			*68.9*
Inside Ramp	*338.00*	*lft*	*4.00*			*150.2*
Ramp "PLST_SW"						
20+00.00	*32+41.23*		*4.00*	*4.00*	*4964.92*	*551.7*
Add Extra 2' where there is curb on ramp						
Outside Ramp	*188.56*	*lft*	*4.00*			*83.8*
Inside Ramp	*450.00*	*lft*	*4.00*			*200.0*
Ramp "PLST_NW"						
40+00.00	*52+72.70*		*4.00*	*4.00*	*5090.80*	*565.6*
Add Extra 2' where there is curb on ramp						
Outside Ramp	*153.00*	*lft*	*4.00*			*68.0*
Inside Ramp	*269.18*	*lft*	*4.00*			*119.6*
				SUBTOTAL (THIS PAGE) =		***47139.6***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: SRS 5/15/12 *Checked By: ATW 11/25/12*

207-08263

SUBGRADE TREATMENT, TYPE IA

SYS

Begin Station	*End Station*	*Side*	*Begin Width*	*End Width*	*Area (sft)*	*Area (sys)*
Ramp "PLST_NE"						
30+00.00	*40+39.40*		*4.00*	*4.00*	*4157.60*	*462.0*
Add Extra 2' where there is curb on ramp						
Outside Ramp	*188.56*	*lft*	*4.00*			*83.8*
Inside Ramp	*365.29*	*lft*	*4.00*			*162.4*
Roundabout						
Outside area		*subtract inside area*				
74858.49		*15544.60*			*59313.89*	*6590.4*
Subtract from bridge area:						
					6046.99	*-671.9*
Subtract pavement from moment slab						
NE Wall					*7178.31*	*-797.6*
SE Wall					*6791.95*	*-754.7*
SW Wall					*4690.21*	*-521.1*
NW Wall					*5553.81*	*-617.1*

SUBTOTAL (THIS PAGE) = 3936.2

TOTAL = 51076.0

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *SRS* *4/19/12* *Checked By:* *BWS* *11/24/12*

207-08267 **SUBGRADE TREATMENT, TYPE IIIA** **65 SYS**

Alignment				*Area (sft)*		*SYS*
Line "S-3-A"						
Driveway @ Sta. 11+34.14				*580.22*		*64.5*
				TOTAL =		***64.5***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: SRS 11/16/12 Checked By: srp 11/26/12

211-09194 **B BORROW** **53,741 TON**

Station from	Station to		Area		VOLUME	VOLUME
			(sft)		(cft)	(cys)
Borrow for behind both inside and outside walls. Area calculated in AutoCAD in "Typicals3.dwg". Areas for two scenarios.						
Area between both walls at tallest point: 278.23 sft						
Area behind inside wall, no outside wall present: 336.29 sft						
NB Wall						
275+52.48	280+31.48		336.29		161082.91	5966.03
280+31.48	281+45.25		278.23		31654.23	1172.38
281+45.25	282+95.44		336.29		50507.40	1870.64
282+95.44	284+24.69		278.23		35961.23	1331.90
284+24.69	293+28.79		336.29		304039.79	11260.73
SB Wall						
269+18.98	280+24.40		336.29		371741.69	13768.21
280+24.40	281+45.58		278.23		33715.91	1248.74
281+45.58	282+95.77		336.29		50507.40	1870.64
282+95.77	284+09.53		278.23		31651.44	1172.28
284+09.53	295+39.90		336.29		380132.13	14078.97

TOTAL = 53740.5

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 11/19/12 *Checked By: BWC 11/24/12*

211-09264 **STRUCTURAL BACKFILL, TYPE 1** **847 CYS**

		Depth	Length	Width		Volume
						(cys)
Sum from Item 720-05149		Assume 2'				
	5593.00	2.0	5593.0	2.0		828.59
				Assume 2'		
Pipe extension						
Sta. 290+50	Pipe size = 48"	2.00	48.06	5.00		18
			(add 1' to pipe width)			

TOTAL this page =	846.4
TOTAL =	846.4

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: SRS 10/22/12 *Checked By: srp 11/26/12*

211-09266 **STRUCTURAL BACKFILL, TYPE 3** **24,736 CYS**

Segment	*Length*	*Begin Height*	*End Height*	*Structure Backfill*		*Volume*
	(ft)	*(ft)*	*(ft)*	*Width*	*Volume*	*(cys)*
				(ft)	*(cft)*	
*Since the wall is curved and extends between two alignments (mainline and ramp), all lengths measured in AutoCAD for better accuracy. Segments measured in the direction of travel. Not every wall has all 3 segments. Assumptions made on lengths depending on what the wall looks like. * = measured directly in AutoCAD.*						
Segment 1 = Transition from 4 ft to 7 ft						
Segment 2 = 7 ft (around curve)						
Segment 3 = Transition from 7 ft to 4 ft						
NE Wall	***361.76***					
Segment 1	*120.59*	*4*	*11*	*5.25*	*4748.10*	*176*
Segment 2	*120.59*	*11*	*11*	*7.70*	*10213.69*	*378*
Segment 3	*120.59*	*11*	*4*	*5.25*	*4748.10*	*176*
SE Wall	***336.09***					
Segment 1	*--*	*--*	*--*			
Segment 2	*252.07*	*11*	*11*	*7.70*	*21350.12*	*791*
Segment 3	*84.02*	*11*	*4*	*5.25*	*3308.39*	*123*
SW Wall	***299.42***					
Segment 1	*74.86*	*4*	*11*	*5.25*	*2947.42*	*109*
Segment 2	*224.57*	*11*	*11*	*7.70*	*19020.66*	*704*
Segment 3	*--*	*--*	*--*			
NW Wall	***266.13***					
Segment 1	*--*	*--*	*--*			
Segment 2	*266.13*	*11*	*11*	*7.70*	*22541.21*	*835*
Segment 3	*--*	*--*	*--*			
				TOTAL =		***3291.8***

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: SRS 10/22/12 *Checked By: srp 11/22/12*

211-09266

STRUCTURAL BACKFILL, TYPE 3

CYS

Station From	*Station To*	*Begin Height*	*End Height*	*Structure Backfill*		*Volume*
		(ft)	*(ft)*	*Width*	*Volume*	*(cys)*
Inside Wall				***(ft)***	***(cft)***	
Wall along SR 37, in three segments. First segment transition from 3.98 ft to 27 ft. Second segment stays 27 ft all the way through roundabout. Third segment transitions from 27 ft back to 3.98 ft. Heights in AutoCAD in "Typicals3.dwg"						
NB Wall						
275+70.47	*281+45.25*	*4*	*27*	*10.84*	*96538.94*	*3576*
281+45.25	*282+95.44*	*27*	*27*	*18.90*	*76641.96*	*2839*
282+95.44	*288+70.49*	*27*	*4*	*10.84*	*96584.29*	*3577*
SB Wall						
275+70.47	*281+45.58*	*4*	*27*	*10.85*	*96719.12*	*3582*
281+45.58	*282+95.77*	*27*	*27*	*18.90*	*76641.96*	*2839*
282+95.77	*288+70.49*	*27*	*4*	*10.84*	*96528.86*	*3575*
Additional Area for cut (2 ft out and 1:1 slope out under road)						
Area by AutoCAD in "Typicals3.dwg" = 15.12 sft						
			Length	*Area*	*Volume*	
NB Wall			*(ft)*	*(sft)*	*(cft)*	
275+70.47	*288+70.49*		*1300*	*15.12*	*19656.30*	*728*
SB Wall						
275+70.47	*288+70.49*		*1300*	*15.12*	*19656.30*	*728*

TOTAL this page = ***21443.2***

TOTAL = ***24735.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 4/26/12 *Checked By: BWC 11/24/12*

301-07448 **COMPACTED AGGREGATE, NO. 53, BASE** **3,090 TON**

Description		*Length (ft)*	*Width (ft)*	*Depth (ft)*	*Factor (tons/cys)*	*Weight (Tons)*
Assumptions: Used MOT Plan for 126th and Keystone as example MOT Plan.						
Use 165#/sys of Surface and 825#/sys of Base)						
MOT Phase II: Replace Existing Inside Shoulders and install crossovers						
Line "A"	***NB Inside***					
At Beginning		*300.00*	*19.00*	*0.50*	*2*	*211*
At End		*570.00*	*19.00*	*0.50*	*2*	*401*
Line "A"	***SB Inside***					
From Begin to End		*1336.00*	*20.00*	*0.50*	*2*	*990*
North of S-Line (existing turn lanes)		*365.00*	*2.00*	*0.50*	*2*	*27*
North of ex. Turn lanes		*750.00*	*20.00*	*0.50*	*2*	*556*
Line "A"						
Median crossover at end project		*400.00*	*22.00*	*0.50*	*2*	*326*
Median crossover at begin project		*400.00*	*22.00*	*0.50*	*2*	*326*
MOT Phase III: Install Temporary Pavement across S-Line for NB Ph IV traffic.						
Line "A"						
At S-line for traffic on ramp Ph IV		*360.00*	*19.00*	*0.50*	*2*	*253*

SUBTOTAL (THIS PAGE) = 3089.6

TOTAL = 3089.6

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: SRS 5/16/12 *Checked By: ATW 11/25/12*

302-06464 **SUBBASE FOR PCCP** **12,769 CYS**

Begin Station	*End Station*	*Side*	*Width*	*Area (sft)*	*Depth (ft)*	*CYS*
Pavement Area copied from 501-06323 multiplied by 9:				*395604.4888*	*0.75*	*10989.0*
Outside Area (2' on either side):						
Line "A"						
268+42.63	*270+14.74*	*Rt*	*2.00*	*344.22*	*0.75*	*9.6*
270+14.74	*275+52.48*	*Rt*	*2.00*	*1075.48*	*0.75*	*29.9*
275+52.48	*287+67.93*	*Rt*	*2.00*	*2430.90*	*0.75*	*67.5*
287+67.93	*289+88.09*	*Rt*	*2.00*	*440.32*	*0.75*	*12.2*
289+88.09	*293+28.79*	*Rt*	*2.00*	*681.40*	*0.75*	*18.9*
268+42.63	*269+18.98*	*Lt*	*2.00*	*152.70*	*0.75*	*4.2*
269+18.98	*273+81.00*	*Lt*	*2.00*	*924.04*	*0.75*	*25.7*
273+81.00	*274+81.00*	*Lt*	*2.00*	*200.00*	*0.75*	*5.6*
274+81.00	*276+01.10*	*Lt*	*2.00*	*240.20*	*0.75*	*6.7*
276+01.10	*286+37.21*	*Lt*	*2.00*	*2072.22*	*0.75*	*57.6*
286+37.21	*289+36.89*	*Lt*	*2.00*	*599.36*	*0.75*	*16.6*
289+36.89	*293+28.79*	*Lt*	*2.00*	*783.80*	*0.75*	*21.8*
Ramp "PLST_SE"						
10+00.00	*16+09.01*		*4.00*	*2436.04*	*0.75*	*67.7*
Add Extra 2' where there is curb on ramp						
Outside Ramp	*155.00*	*lft*	*4.00*	*620.00*	*0.75*	*17.2*
Inside Ramp	*338.00*	*lft*	*4.00*	*1352.00*	*0.75*	*37.6*
Ramp "PLST_SW"						
20+00.00	*32+41.23*		*4.00*	*4964.92*	*0.75*	*137.9*
Add Extra 2' where there is curb on ramp						
Outside Ramp	*188.56*	*lft*	*4.00*	*754.24*	*0.75*	*21.0*
Inside Ramp	*450.00*	*lft*	*4.00*	*1800.00*	*0.75*	*50.0*
Ramp "PLST_NW"						
40+00.00	*52+72.70*		*4.00*	*5090.80*	*0.75*	*141.4*
Add Extra 2' where there is curb on ramp						
Outside Ramp	*153.00*	*lft*	*4.00*	*612.00*	*0.75*	*17.0*
Inside Ramp	*269.18*	*lft*	*4.00*	*1076.72*	*0.75*	*29.9*

SUBTOTAL (THIS PAGE) = 11784.9

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: SRS 5/16/12 *Checked By: ATW 11/25/12*

302-06464

SUBBASE FOR PCCP

CYS

Begin Station	*End Station*	*Begin Width*	*End Width*	*Area (sft)*	*Depth (ft)*	*Volume (cys)*
Ramp "PLST_NE"						
30+00.00	*40+39.40*		*4.00*	*4157.60*	*0.75*	*115.5*
Add Extra 2' where there is curb on ramp						
Outside Ramp	*188.56*	*lft*	*4.00*	*754.24*	*0.75*	*21.0*
Inside Ramp	*365.29*	*lft*	*4.00*	*1461.16*	*0.75*	*40.6*
Roundabout						
Outside area		*subtract inside area*				
74858.49	*sft*	*15544.60*		*59313.89*	*0.75*	*1647.6*
Subtract from bridge area:						
				6046.99	*0.75*	*-168.0*
Subtract pavement from moment slab						
NE Wall				*7178.31*	*0.75*	*-199.4*
SE Wall				*6791.95*	*0.75*	*-188.7*
SW Wall				*4690.21*	*0.75*	*-130.3*
NW Wall				*5553.81*	*0.75*	*-154.3*

SUBTOTAL (THIS PAGE) = 984.0

TOTAL = 12768.9

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: SRS 3/2/12 Checked By: ATW 11/25/12

303-01180 **COMPACTED AGGREGATE, NO. 53** **1,597 TON**

Begin Station	End Station	Side	Area (sft)	Volume	Factor	Tons
				(cys)	(T/cys)	
Line "A"						
268+42.54	270+14.50	Rt	5.4	34.39	2.000	68.78
270+14.50	275+52.48	Rt	5.4	107.60	2.000	215.19
268+42.63	269+18.98	Lt	5.4	15.27	2.000	30.54
Ramp "S-3-A_SE"						
10+00.00	13+33.64	Rt	5.4	66.73	2.000	133.46
13+33.64	14+33.64	Rt	5.4	20.00	2.000	40.00
Ramp "S-3-A_SW"						
11+90.70	22+41.24	Lt	5.4	210.11	2.000	420.22
Ramp "S-3-A_NW"						
12+14.71	19+97.35	Lt	5.4	156.53	2.000	313.06
19+97.35	20+97.35	Lt	5.4	20.00	2.000	40.00
Ramp "S-3-A_NE"						
12+00.03	20+39.41	Rt	5.4	167.88	2.000	335.75

TOTAL = 1597.0

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 4/26/12 *Checked By: BWC 11/24/12*

402-10084 **HMA FOR TEMPORARY PAVEMENT, B** **5,065 TON**

Description		*Length (ft)*	*Width (ft)*	*Area (sys)*	*Factor (#/SYS)*	*Weight (Tons)*
Assumptions: Used MOT Plan for 126th and Keystone as example MOT Plan.						
Use 165#/sys of Surface and 825#/sys of Base)						
MOT Phase I : Resurface Existing Outside Shoulders						
Line "A"	***NB Outside***					
From Begin to End		*2600.00*	*10.00*	*2888.89*	*165*	*238*
Line "A"	***SB Outside***					
From Begin to End		*2600.00*	*10.00*	*2888.89*	*165*	*238*
MOT Phase II: Replace Existing Inside Shoulders and install crossovers						
Line "A"	***NB Inside***					
At Beginning		*300.00*	*19.00*	*633.33*	*990*	*314*
At End		*570.00*	*19.00*	*1203.33*	*990*	*596*
Line "A"	***SB Inside***					
From Begin to End		*1336.00*	*20.00*	*2968.89*	*990*	*1470*
North of S-Line (existing turn lanes)		*365.00*	*2.00*	*81.11*	*990*	*40*
North of ex. Turn lanes		*750.00*	*20.00*	*1666.67*	*990*	*825*
Line "A"						
Median crossover at end project		*400.00*	*22.00*	*977.78*	*990*	*484*
Median crossover at begin project		*400.00*	*22.00*	*977.78*	*990*	*484*
MOT Phase III: Install Temporary Pavement across S-Line for NB Ph IV traffic.						
Line "A"						
At S-line for traffic on ramp Ph IV		*360.00*	*19.00*	*760.00*	*990*	*376*

SUBTOTAL (THIS PAGE) = 5064.8

TOTAL = 5064.8

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *4/11/12* *Checked By:* *ATW* *11/24/12*

501-06266 **PROFILOGRAPH, PCCP** **1**
LS

Begin Station	***End Station***	***Spacing***				***LS***
Entire Project						*1.0*
					TOTAL =	***1.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: SRS 5/14/12 *Checked By:* ATW 11/25/12

501-06323 **QC/QA-PCCP, 12 IN** **43,957 SYS**

Begin Station	*End Station*	*Side*	*Begin Width*	*End Width*	*Area (sft)*	*SYS*
Line "A"						
268+42.63	*270+14.74*	*Rt*	*52.00*	*52.00*	*8949.72*	*994.4*
270+14.74	*275+52.48*	*Rt*	*52.00*	*71.50*	*33205.44*	*3689.5*
275+52.48	*287+67.93*	*Rt*	*45.50*	*45.50*	*55302.98*	*6144.8*
287+67.93	*289+88.09*	*Rt*	*45.50*	*54.00*	*10952.96*	*1217.0*
289+88.09	*293+28.79*	*Rt*	*57.50*	*57.50*	*19590.25*	*2176.7*
268+42.63	*269+18.98*	*Lt*	*83.50*	*57.50*	*5382.67*	*598.1*
269+18.98	*273+81.00*	*Lt*	*57.50*	*57.50*	*26566.15*	*2951.8*
273+81.00	*274+81.00*	*Lt*	*57.50*	*52.05*	*5477.50*	*608.6*
274+81.00	*276+01.10*	*Lt*	*52.05*	*45.50*	*5857.88*	*650.9*
276+01.10	*286+37.21*	*Lt*	*45.50*	*45.50*	*47143.01*	*5238.1*
286+37.21	*289+36.89*	*Lt*	*45.50*	*57.50*	*15433.52*	*1714.8*
289+36.89	*293+28.79*	*Lt*	*57.50*	*57.50*	*22534.25*	*2503.8*
Ramp "PLST_SE"						
10+00.00	*13+33.64*	*Rt*	*26.00*	*26.00*	*8674.64*	*963.8*
13+33.64	*14+33.16*	*Rt*	*26.00*	*38.00*	*3184.64*	*353.8*
14+33.64	*14+54.18*	*Rt*	*38.00*	*38.00*	*780.52*	*86.7*
14+54.18	*14+87.02*	*Rt*	*32.00*	*27.70*	*980.27*	*108.9*
14+87.02	*16+09.01*	*Rt*	*27.70*	*31.51*	*3611.51*	*401.3*
Ramp "PLST_SW"						
20+00.00	*21+29.13*	*Lt*	*15.45*	*12.00*	*1772.31*	*196.9*
21+29.13	*21+90.69*	*Lt*	*12.00*	*20.00*	*984.96*	*109.4*
21+90.69	*25+59.11*	*Lt*	*38.00*	*38.00*	*13999.96*	*1555.6*
25+59.11	*27+79.11*	*Lt*	*38.00*	*26.00*	*7040.00*	*782.2*
27+79.11	*32+41.23*	*Lt*	*26.00*	*26.00*	*12015.12*	*1335.0*
Ramp "PLST_NW"						
40+00.00	*49+97.35*	*Lt*	*26.00*	*26.00*	*25931.10*	*2881.2*
49+97.35	*50+97.35*	*Lt*	*26.00*	*38.00*	*3200.00*	*355.6*
50+97.35	*51+17.89*	*Lt*	*38.00*	*38.00*	*780.52*	*86.7*
51+17.89	*51+50.73*	*Lt*	*32.00*	*27.70*	*980.27*	*108.9*
51+50.73	*52+72.70*	*Lt*	*27.70*	*31.53*	*3612.14*	*401.3*
Ramp "PLST_NE"						
30+00.00	*31+40.59*	*Rt*	*17.20*	*13.47*	*2155.95*	*239.5*
31+40.59	*31+90.70*	*Rt*	*13.47*	*20.00*	*838.59*	*93.2*
31+90.70	*34+87.13*	*Rt*	*38.00*	*38.00*	*11264.34*	*1251.6*
34+87.13	*37+04.50*	*Rt*	*38.00*	*26.00*	*6955.84*	*772.9*
37+04.50	*40+39.40*	*Rt*	*26.00*	*28.00*	*9042.30*	*1004.7*
Roundabout						
Outside area	*subtract inside area*					
64157.81	*15544.60*				*48613.21*	*5401.5*

SUBTOTAL (THIS PAGE) = ***46979.4***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *SRS* *5/14/12* *Checked By:* *ATW* *11/25/12*

501-06323 **QC/QA-PCCP, 12 IN** **SYS**

Begin Station	End Station	Side	Begin Width	End Width	Area (sft)	SYS
Subtract pavement from moment slab						
NE Wall					6034.97	-671
SE Wall					5730.52	-637
SW Wall					4690.21	-521
NW Wall					4707.35	-523
Subtract from bridge area:						
					6046.99	-672

SUBTOTAL (THIS PAGE) = -3023.3

TOTAL = 43956.1

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *srs* *11/19/12* *Checked By:* *ATW* *11/25/12*

503-05240

D-1 CONTRACTION JOINT

21,979 LFT

Begin Station	*End Station*	*Spacing*				*LFT*
Total Project	*Total Project*					
(SYS)	*(sft)*	*(FT)*				
43957.00	*395613.00*	*18.0*				*21978.5*

TOTAL = ***21978.5***

_10-703_

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *SRS* *11/24/12* *Checked By:* *BWS* *11/25/12*

601-01522 **GUARDRAIL, TRANSITION TYPE TGB** **4 EACH**

						EACH
NW Quadrant						*1.0*
NE Quadrant						*1.0*
SE Quadrant						*1.0*
SW Quadrant						*1.0*
					TOTAL =	***4.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *SRS* *11/24/12* *Checked By:* *BWS* *11/25/12*

601-94689 **GUARDRAIL END TREATMENT, OS** **4 EACH**

						EACH
NW Quadrant						*1.0*
NE Quadrant						*1.0*
SE Quadrant						*1.0*
SW Quadrant						*1.0*

TOTAL = ***4.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: SRS 11/24/12 *Checked By: BWS 11/25/12*

601-99105 **GUARDRAIL, W-BEAM, 6 FT 3 IN SPACING** **2,830 LFT**

						LFT
NW Quadrant						*530.0*
NE Quadrant						*400.0*
SE Quadrant						*780.0*
SW Quadrant						*1120.0*
					TOTAL =	***2830.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *srs* *11/24/12* *Checked By:* *BWS* *11/24/12*

602-08603 **CONCRETE BARRIER, 45 IN** **4,073 LFT**

Begin Station	***End Station***	***Side***				***LFT***
SR 37						
268+43	*293+29*	*Md*				*2486.2*
Sections before wall begins						
275+52	*275+70*	*NB*				*17.3*
288+70	*293+29*					*458.3*
269+19	*275+71*	*SB*				*652.1*
288+71	*293+29*					*458.1*

TOTAL = ***4072.1***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 11/20/12 *Checked By: BWC 11/24/12*

603-06040 **FENCE, FARM FIELD, 47 IN** **4,373 LFT**

Begin Station	*End Station*			*# of Sides*		*Length (ft)*
Line "A"						
268+42.63	*281+00.00*			*2.00*		*2515*
284+00.00	*293+28.79*			*2.00*		*1858*

SUBTOTAL (THIS PAGE) = 4372.3

TOTAL = 4372.3

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *JPS* *11/21/12* *Checked By:* *BWS* *11/24/12*

604-07569 **PAVERS** **491 SYS**

Begin Station	***End Station***					***SYS***
Line "S-3-A"						*490.8*

SUBTOTAL (THIS PAGE) = ***490.8***

TOTAL = ***490.8***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *JPS* *11/21/12* *Checked By:* *BWS* *11/24/12*

605-06120 **CURB, CONCRETE** **619 LFT**

Begin Station	*End Station*					*LFT*
Line "S-3-A"						
West Side						*310*
East Side						*310*

SUBTOTAL (THIS PAGE) = ***619.0***

TOTAL = ***619.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: DJZ 4/11/12 *Checked By: BWS 11/24/12*

605-06140 **CURB AND GUTTER, CONCRETE** **2,561 LFT**

Begin Station	*End Station*	*Location*	*Drives (Lft)*	*Length*		*LFT*
Pleasant St.						
Southeast Ramp		*Outside Ramp*		*155.00*		*155.0*
		Inside Ramp		*338.00*		*338.0*
Southwest Ramp		*Outside Ramp*		*188.56*		*188.6*
		Inside Ramp		*450.00*		*450.0*
NorthEast Ramp		*Outside Ramp*		*188.56*		*188.6*
		Inside Ramp		*365.29*		*365.3*
NorthWest Ramp		*Outside Ramp*		*153.00*		*153.0*
		Inside Ramp		*269.18*		*269.2*
13+27.29	*14+47.58*	*Rt*				*120.3*
14+47.58	*15+53.70*	*Rt*				*106.1*
13+40.00	*14+45.95*	*Lt*				*106.0*
14+45.95	*15+67.00*	*Lt*				*121.1*

TOTAL = ***2561.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *JPS* *11/21/12* *Checked By:* *BWS* *11/24/12*

605-06145 **CURB AND GUTTER, B, CONCRETE** **846 LFT**

Begin Station	***End Station***					***LFT***
Line "S-3-A"						*845.7*

SUBTOTAL (THIS PAGE) = ***845.7***

TOTAL = ***845.7***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *4/19/12* *Checked By:* *JPS* *11/21/12*

605-06255 **CENTER CURB, D, CONCRETE** **463 SYS**

Begin Station	***End Station***		***Area (Sq. ft.)***			***SYS***
Pleasant St.	***West of SR 37***					
Area by AutoCAD			*2010.30*			*223.4*
Pleasant St.	***East of SR 37***					
Area by AutoCAD			*2150.10*			*238.9*
					TOTAL =	***462.3***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *SRS* *2/28/12* *Checked By:* *BWS* *11/24/12*

610-09108 **PCCP FOR APPROACHES, 9 IN** **65 SYS**

Station				Area (sft)		SYS
Line "S-3-A"						
Driveway @ Sta. 11+34.14				580.22		64.5

SUBTOTAL (THIS PAGE) = 64.5

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *BWS* *11/20/12* *Checked By:* *BWC* *11/24/12*

615-06510 **MONUMENT, C** **4 EACH**

Alignment	*Station*	*Description*	*Inside Pavement?*			*Each*
Line "S-3-A"						
	10+00	*Begin Project*		*Yes*		
	14+45.94	*Int*		*Yes*		
	15+26.19	*PC*		*Yes*		
	15+79.66	*PI*		*Yes*		
	16+33.14	*PT*		*Yes*		
	17+99.66	*End Project*		*Yes*		
Line "A"						
	268+42.63	*Begin Project*		*Yes*		
	278+00.00	*Between BP and PC*		*Yes*		
	288+24.93	*PC*		*Yes*		
	293+28.79	*End Project*		*Yes*		
SW Ramp	*20+00.00*	*Begin Project, PC*		*Yes*		
	20+98.69	*PI*		*No*		*1.0*
	21+90.69	*PT*		*Yes*		
	25+00.00	*Between PT and EP*		*Yes*		
	32+41.23	*End Project*		*Yes*		
NW Ramp	*40+00.00*	*Begin Project*		*Yes*		
	43+07.39	*PI*		*Yes*		
	46+13.48	*PT*		*Yes*		
	49+15.24	*PI*		*Yes*		
	51+17.89	*PC*		*Yes*		
	5199.41	*PI*		*No*		*1.0*
	52+72.70	*End Project, PT*		*Yes*		
NE Ramp	*30+00.00*	*Begin Project, PC*		*Yes*		
	30+98.70	*PI*		*No*		*1.0*
	31+90.70	*PT*		*Yes*		
	35+44.13	*PC*		*Yes*		
	37+92.13	*PI*		*Yes*		
	40+39.00	*End Project*		*Yes*		
SE Ramp	*10+00.00*	*Begin Project*		*Yes*		
	14+54.18	*PC*		*Yes*		
	15+35.71	*PI*		*No*		*1.0*
	16+09.01	*End Project, PT*		*Yes*		
					TOTAL =	***4.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *BWS* *11/20/12* *Checked By:* *BWC* *11/24/12*

615-06515 **MONUMENT, D** **28 EACH**

Alignment	*Station*	*Description*	*Inside Pavement?*			*Each*
Line "S-3-A"						
	10+00	*Begin Project*		*Yes*		*1.0*
	14+45.94	*Int*		*Yes*		*1.0*
	15+26.19	*PC*		*Yes*		*1.0*
	15+79.66	*PI*		*Yes*		*1.0*
	16+33.14	*PT*		*Yes*		*1.0*
	17+99.66	*End Project*		*Yes*		*1.0*
Line "A"						
	268+42.63	*Begin Project*		*Yes*		*1.0*
	278+00.00	*Between BP and PC*		*Yes*		*1.0*
	288+24.93	*PC*		*Yes*		*1.0*
	293+28.79	*End Project*		*Yes*		*1.0*
SW Ramp	*20+00.00*	*Begin Project, PC*		*Yes*		*1.0*
	20+98.69	*PI*		*No*		
	21+90.69	*PT*		*Yes*		*1.0*
	25+00.00	*Between PT and EP*		*Yes*		*1.0*
	32+41.23	*End Project*		*Yes*		*1.0*
NW Ramp	*40+00.00*	*Begin Project*		*Yes*		*1.0*
	43+07.39	*PI*		*Yes*		*1.0*
	46+13.48	*PT*		*Yes*		*1.0*
	49+15.24	*PI*		*Yes*		*1.0*
	51+17.89	*PC*		*Yes*		*1.0*
	5199.41	*PI*		*No*		
	52+72.70	*End Project, PT*		*Yes*		*1.0*
NE Ramp	*30+00.00*	*Begin Project, PC*		*Yes*		*1.0*
	30+98.70	*PI*		*No*		
	31+90.70	*PT*		*Yes*		*1.0*
	35+44.13	*PC*		*Yes*		*1.0*
	37+92.13	*PI*		*Yes*		*1.0*
	40+39.00	*End Project*		*Yes*		*1.0*
SE Ramp	*10+00.00*	*Begin Project*		*Yes*		*1.0*
	14+54.18	*PC*		*Yes*		*1.0*
	15+35.71	*PI*		*No*		
	16+09.01	*End Project, PT*		*Yes*		*1.0*
					TOTAL =	***28.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *4/11/12* *Checked By:* *BWS* *11/24/12*

616-02320 **GEOTEXTILES** **368 SYS**

Begin Station	***End Station***	***Side Slope*** *X:1*	***Slope Length*** *(FT)*	***Bottom*** *Perimeter(FT)*		***Area*** *SYS*
Ditch Linings						
Line "A"						
268+42.63	293+28.79	*3*	*3.16*	*13.3*		*3679.5*
					Take 10%	*3679.5*

TOTAL = ***368.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *4/11/12* *Checked By:* *BWS* *11/24/12*

616-06405 **RIPRAP, REVETMENT** **208 TON**

Begin Station	***End Station***	***Side Slope*** *(3:1)*	***Area*** *(sys)*	***Volume*** *(cys)*	***Factor*** ***(tons/cys)***	***Weight*** *Tons*
Ditch Linings						
Line "A"						
268+42.63	293+28.79	*3*	*1.7*	*1381.2*	*1.5*	*207.2*

TOTAL = ***207.2***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *4/11/12* *Checked By:* *BWS* *11/24/12*

621-01004 **MOBILIZATION AND DEMOBILIZATION FOR SEEDING** **4 EACH**

Station						***EACH***
Use a Total of 4 for Entire Project						*4.0*

TOTAL = ***4.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *4/25/12* *Checked By:* *BWS* *11/24/12*

621-06545 **FERTILIZER** **4 TON**

Description		***Area***		***Application Rate***		***Ton***
				(lb/ac)		
Area of Permanent Seeding =		*5.18*	*ac*	*800*		*2.1*
Area of Temporary Seeding =		*2.59*	*ac*	*800*		*1.0*
					TOTAL =	***3.1***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: DJZ 4/25/12 Checked By: BWS 11/24/12

621-06554 **SEED MIXTURE, U** **881 LBS**

Description			Area	Units		LBS
NE	Area from AutoCAD		54907.22	sft		
NW	Area from AutoCAD		52711.24	sft		
SE	Area from AutoCAD		67254.78	sft		
SW	Area from AutoCAD		71997.97	sft		
	Total Seeding		27430.13	sys		
			5.67	ac		
	Total Sodding		2360.00	sys		
			0.49	ac		
	Total Seed Area		5.18	ac		
	Application Rate		170	#/ac		880.6
					TOTAL =	880.6

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *4/25/12* *Checked By:* *BWS* *11/24/12*

621-06557 **SEED MIXTURE, T** **389 LBS**

Description		***Area***		***Application Rate***		***LBS***
Entire Project		*2.59*	*ac*	*150*	*#/ac*	*388.5*

TOTAL = ***388.5***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: DJZ 4/25/12 Checked By: BWS 11/24/12

621-06565 **MULCHING MATERIAL** **16 TON**

Description			Area	Application Rate		LBS
Entire Project						
Seed Mixture, T			2.59			
Seed Mixture, U			5.18			
			7.77	2.00	Tons/ac	15.5

TOTAL = 15.5

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *4/25/12* *Checked By:* *BWS* *11/24/12*

621-06567 **WATER** **10 kGAL**

Description					***Rate (kGAL/sys)***	***kGAL***
Area of Sodding =		*2360.00*	*sys*		*0.004*	*9.4*

TOTAL = ***9.4***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *4/25/12* *Checked By:* *BWS* *11/24/12*

621-06574 **SODDING** **2,360 SYS**

Begin Station	***End Station***		***Width***	***Factor***		***Area*** *SYS*
NB						
268+43	*293+29*		*2.67*			*737.5*
SB						
268+43	*293+29*		*2.67*			*737.6*
NB						
268+43	*293+29*		*16*	*0.1*		*441.9*
SB						
268+43	*293+29*		*16*	*0.1*		*442.0*

TOTAL = ***2359.1***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *4/11/12* *Checked By:* *BWS* *11/24/12*

628-08520 **CELLULAR TELEPHONE/RADIO** **2 EACH**

						EACH
Entire P roject						*2.0*
					TOTAL =	***2.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *4/11/12*   *Checked By:* *BWS* *11/24/12*

628-08521

CELLULAR TELEPHONE/RADIO SERVICE

36
MOS

			# of Phones			***MOS***
Assume Project Length is 18 months			*2*			*36.0*

TOTAL = ***36.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *4/11/12* *Checked By:* *BWS* *11/24/12*

628-09403 **FIELD OFFICE, C** **18 MOS**

						MOS
Assume Project Length is 18 months						*18.0*

TOTAL = ***18.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *BWS* *4/26/12* *Checked By:* *BWC* *11/24/12*

701-90386 **TEMPORARY SHEET PILING** **1 LS**

Description						*Area (sft)*
Assumptions: Used MOT Plan for 126th and Keystone as example MOT Plan. Will need wall for Phase III.						
For the Under option, assume 14.5 feet of elevation change for SR 37 and remaining grade by S-line.						
Assume 485' at 3% to get back to grade on either side of the bridge, and 200' of 14.5' wall.						
			Total =	*12357.00*	*sft*	
SR 37 will go UNDER Pleasant Street						
Use 12375 sft at $25/sft for a lump sum unit cost of $308,925						*1.0*
					TOTAL =	***1.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *SRS* *10/18/12* *Checked By:* *ATW* *11/25/12*

706-08496 **REINFORCED CONCRETE MOMENT SLAB, 12 IN** **2,352 SYS**

Description	***Area***					***Area***
	(sft)					***(sys)***
All areas measured in AutoCAD, "SRS Working.dwg" on layer "Moment Slab"						
NE Wall	*6034.97*					*671*
SE Wall	*5730.52*					*637*
SW Wall	*4690.21*					*521*
NW Wall	*4707.35*					*523*

TOTAL = ***2351.5***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: SRS 11/19/12 *Checked By: ATW 11/25/12*

706-09545 **COARSE AGGREGATE, NO 8** **588 CYS**

Description	*Area*			*Depth*		*Area*
	(sft)			*(ft)*		*(sys)*
All areas measured in AutoCAD, "SRS Working.dwg" on layer "Moment Slab"						
NE Wall	*6034.97*			*0.75*		*168*
SE Wall	*5730.52*			*0.75*		*159*
SW Wall	*4690.21*			*0.75*		*130*
NW Wall	*4707.35*			*0.75*		*131*

TOTAL = ***587.9***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: SRS 11/24/12 *Checked By: BWS 11/25/12*

706-09959 **RAILING, CONCRETE, FT** **6,164 LFT**

Description	*Length (ft)*					*Length (ft)*
RAMP TOP RIGHT RAILING						
NE Wall	***361.76***					*362*
SE Wall	***336.09***					*336*
SW Wall	***299.42***					*299*
NW Wall	***266.13***					*266*
RAMP TOP LEFT RAILING						
NB Wall						
275+70.47	*281+45.25*					*575*
282+95.44	*288+70.49*					*575*
SB Wall						
275+70.47	*281+45.58*					*575*
282+95.77	*288+70.49*					*575*
INSIDE WALL BOTTOM RAILING						
NB Wall						
275+70.47	*288+70.49*					*1300*
SB Wall						
275+70.47	*288+70.49*					*1300*
					TOTAL =	***6163.1***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: srs 11/19/12 Checked By: *BWS 11/24/12*

715-05048 **PIPE, TYPE 4 CIRCULAR 6 IN** **10,658 LFT**

Begin Sta.	End Sta.					*LFT*
Line "A"		Assume both sides and median				
268+42.63	293+28.79					7458.5
Line "S-3-C"		Assume both sides outside and median				
10+00.00	17+99.66					3198.6

TOTAL = 10657.1

TOTAL = 10657.1

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: *srs* *11/19/12* *Checked By:* *BWS* *11/24/12*

715-05053 **PIPE, UNDERDRAIN, OUTLET 6 IN** **243 LFT**

Begin Station	***End Station***	***Interval***	***Outlet Length***			***LFT***
Line "A"						
268+42.63	293+28.79	*400*	*27.00*			*189.0*
Line "S-3-C"						
10+00.00	17+99.66	*400*	*27.00*			*54.0*

TOTAL = 243.0

TOTAL = 243.0

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 11/19/12 *Checked By: BWC 11/24/12*

715-05149 **PIPE, TYPE 2 CIRCULAR 12 IN** **5,593 LFT**

Station						***Lft***
Use 300' inlet spacing						
Line "A"	*Median Inlets*					
						80
						92
						38
						296
						296
						296
						246
						246
						296
						296
						296
						38
Line "A"	*Outside Wall Inlets*					
	Rt					*54*
	Lt					*54*
	Rt					*66*
	Lt					*54*
	Rt					*38*
	Lt					*38*
	Rt					*38*
	Lt					*38*
	Rt					*66*
	Lt					*66*
	Rt					*54*
	Lt					*66*
Line "S-3-A"						
10+50.00						*157*
11+50.00						*182*
12+70.00						*151*
13+50.00						*173*
14+50.00						*556*
18+50.00						*651*
19+50.00						*172*
20+50.00						*167*
21+50.00						*167*
22+50.00						*67*

SUBTOTAL (THIS PAGE) = 5592.4

TOTAL = 5592.4

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: srs 11/21/12 *Checked By: BWS 11/24/12*

715-06337 **PIPE EXTENSION, CIRCULAR, 48 IN** **49 LFT**

Station						*Lft*
Sta 290+50.00	*SB*					*48.1*

SUBTOTAL (THIS PAGE) = 48.1

TOTAL = 48.1

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: *BWS* *11/19/12* *Checked By:* *BWC* *11/24/12*

715-09064 **VIDEO INSPECTION FOR PIPE** **5,593 LFT**

Station						*Lft*
Total Length of Pipe Item # 715-05149						
						5593

SUBTOTAL (THIS PAGE) = ***5593.0***

TOTAL = ***5593.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *srs* *11/19/12* *Checked By:* *BWS* *11/24/12*

718-06528 **OUTLET PROTECTOR, 1** **9 EACH**

Begin Station	*End Station*	*Interval*				*EACH*
Line "A"						
268+42.63	293+28.79	*400*				*7*
Line "S-3-C"						
10+00.00	17+99.66	*400*				*2*

TOTAL = ***9.0***

TOTAL = ***9.0***

_10-703_

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *srs* *11/19/12* *Checked By:* *BWS* *11/24/12*

718-06532 **VIDEO INSPECTION FOR UNDERDRAINS** **3,000 LFT**

Begin Station	***End Station***	***Interval***				***LFT***
Total length of underdrain from 715-05048			*10658.00*			
Refer to IDM Figure 52-10B			*Length>3000 and <30,000*			*3000*

TOTAL = 3000.0

TOTAL = 3000.0

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: *srs* *11/19/12* Checked By: *BWS* *11/24/12*

718-52610 **AGGREGATE FOR UNDERDRAINS** **960 CYS**

		Total Length of Underdrain			***Factor***	***Volume (cys)***
			(ft)	*IDM Fig 17-4A*	*(cys/lft)*	
Total length of underdrain from 715-05048			*10658.00*		*0.090*	*959.2*

TOTAL = ***959.2***

TOTAL = ***959.2***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *srs* *11/19/12* Checked By: *BWS* *11/24/12*

718-99153 **GEOTEXTILES FOR UNDERDRAIN** **7,303 SYS**

		Total Length of Underdrain			***Factor***	***Area (sys)***
			(ft)	*IDM Fig 17-4A*	*(sft/lft)*	
Total length of underdrain from 715-05048			*10658.00*		*6.17*	*7302.7*

TOTAL = ***7302.7***

TOTAL = ***7302.7***

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 5/11/12 *Checked By: BWC 11/24/12*

720-07300 **INLET, TYPE H, WITH SLOTTED DRAIN** **12 EACH**

Station						*Each*
Use 300' inlet spacing						
Line "A"	*Median Inlets*					
						1
						1
						1
						1
	Sag					*1*
	Sag					*1*
						1
						1
Line "A"	*Outside Wall Inlets*					
	Rt					*1*
	Lt					*1*
	Rt					*1*
	Lt					*1*

SUBTOTAL (THIS PAGE) = ***12.0***

TOTAL = ***12.0***

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 5/11/12 *Checked By: BWC 11/24/12*

720-07302 **INLET, TYPE HA, WITH SLOTTED DRAIN** **12 EACH**

Station						*Each*
Use 300' inlet spacing						
Line "A"	*Outside Wall Inlets*					
	Lt Outside Wall					*1*
	Lt Inside Wall					*1*
	Rt Outside Wall					*1*
	Rt Inside Wall					*1*
	Lt Inside Wall					*1*
	Rt Inside Wall					*1*
	Lt Inside Wall					*1*
	Rt Inside Wall					*1*
	Lt Outside Wall					*1*
	Lt Inside Wall					*1*
	Rt Outside Wall					*1*
	Rt Inside Wall					*1*

SUBTOTAL (THIS PAGE) = ***12.0***

TOTAL = ***12.0***

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: *BWS* *11/19/12* *Checked By:* *BWC* *11/24/12*

720-45410 **MANHOLE, C4** **12 EACH**

Station						*Each*
Use 100' inlet spacing						
Line "S-3-A"	*Outside Curb and Gutter Inlets*					
10+50	*Lt*					*1*
11+50	*Lt*					*1*
12+70	*Lt*					*1*
13+50	*Lt*					*1*
14+50	*Lt*					*1*
15+24	*Lt*					*1*
17+23	*Lt*					*1*
18+50	*Lt*					*1*
19+50	*Lt*					*1*
20+50	*Lt*					*1*
21+50	*Lt*					*1*
22+50	*Lt*					*1*

SUBTOTAL (THIS PAGE) = ***12.0***

TOTAL = ***12.0***

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: *BWS* *11/19/12* *Checked By:* *BWC* *11/24/12*

720-98174 **INLET, B15** **12 EACH**

Station						***Each***
Use 100' inlet spacing						
Line "S-3-A"	*Outside Curb and Gutter Inlets*					
10+50	*Rt*					*1*
11+50	*Rt*					*1*
12+70	*Rt*					*1*
13+50	*Rt*					*1*
14+50	*Lt*					*1*
14+50	*Rt*					*1*
18+50	*Lt*					*1*
18+50	*Rt*					*1*
19+50	*Rt*					*1*
20+50	*Rt*					*1*
21+50	*Rt*					*1*
22+50	*Rt*					*1*

SUBTOTAL (THIS PAGE) = ***12.0***

TOTAL = ***12.0***

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: *BWS* *11/19/12* *Checked By:* *BWC* *11/24/12*

720-98555 **INLET, C15** **12 EACH**

Station						***Each***
Use 100' inlet spacing						
Line "S-3-A"	*Outside Curb and Gutter Inlets*					
10+50	*Lt*					*1*
11+50	*Lt*					*1*
12+70	*Lt*					*1*
13+50	*Lt*					*1*
14+50	*Lt*					*1*
14+50	*Rt*					*1*
18+50	*Lt*					*1*
18+50	*Rt*					*1*
19+50	*Lt*					*1*
20+50	*Lt*					*1*
21+50	*Lt*					*1*
22+50	*Lt*					*1*

SUBTOTAL (THIS PAGE) = ***12.0***

TOTAL = ***12.0***

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: *srs* *11/24/12* *Checked By:* *srp* *11/26/12*

731-93945 **FACE PANELS, CONCRETE** **56,235 SFT**

Segment	*Length*	*Begin Height*	*End Height*			
	(ft)	*(ft)*	*(ft)*			
*Since the wall is curved and extends between two alignments (mainline and ramp), all lengths measured in AutoCAD for better accuracy. Segments measured in the direction of travel. Not every wall has all 3 segments. Assumptions made on lengths depending on what the wall looks like. * = measured directly in AutoCAD.*						
Segment 1 = Transition from 4 ft to 7 ft						
Segment 2 = 7 ft (around curve)						
Segment 3 = Transition from 7 ft to 4 ft						
NE Wall	***361.76***					
Segment 1	*120.59*	*4*	*11*			*904*
Segment 2	*120.59*	*11*	*11*			*1326*
Segment 3	*120.59*	*11*	*4*			*904*
SE Wall	***336.09***					
Segment 1	--	--	--			
Segment 2	*252.07*	*11*	*11*			*2773*
Segment 3	*84.02*	*11*	*4*			*630*
SW Wall	***299.42***					
Segment 1	*74.86*	*4*	*11*			*561*
Segment 2	*224.57*	*11*	*11*			*2470*
Segment 3	--	--	--			
NW Wall	***266.13***					
Segment 1	--	--	--			
Segment 2	*266.13*	*11*	*11*			*2927*
Segment 3	--	--	--			
INSIDE WALL AREAS COPIED FROM STRUCTURE BACKFILL AREAS (211-09226)						
NB Wall						
275+70.47	*281+45.25*	*4*	*27*			*8903*
281+45.25	*282+95.44*	*27*	*27*			*4055*
282+95.44	*288+70.49*	*27*	*4*			*8908*
SB Wall						
275+70.47	*281+45.58*	*4*	*27*			*8914*
281+45.58	*282+95.77*	*27*	*27*			*4055*
282+95.77	*288+70.49*	*27*	*4*			*8902*
					TOTAL =	***56235.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *srs* *11/24/12* *Checked By:* *srp* *11/26/12*

731-93946

WALL ERECTION

56,235 SFT

Segment	*Length*	*Begin Height*	*End Height*			
	(ft)	*(ft)*	*(ft)*			
*Since the wall is curved and extends between two alignments (mainline and ramp), all lengths measured in AutoCAD for better accuracy. Segments measured in the direction of travel. Not every wall has all 3 segments. Assumptions made on lengths depending on what the wall looks like. * = measured directly in AutoCAD.*						
Segment 1 = Transition from 4 ft to 7 ft						
Segment 2 = 7 ft (around curve)						
Segment 3 = Transition from 7 ft to 4 ft						
NE Wall	***361.76***					
Segment 1	*120.59*	*4*	*11*			*904*
Segment 2	*120.59*	*11*	*11*			*1326*
Segment 3	*120.59*	*11*	*4*			*904*
SE Wall	***336.09***					
Segment 1	*--*	*--*	*--*			
Segment 2	*252.07*	*11*	*11*			*2773*
Segment 3	*84.02*	*11*	*4*			*630*
SW Wall	***299.42***					
Segment 1	*74.86*	*4*	*11*			*561*
Segment 2	*224.57*	*11*	*11*			*2470*
Segment 3	*--*	*--*	*--*			
NW Wall	***266.13***					
Segment 1	*--*	*--*	*--*			
Segment 2	*266.13*	*11*	*11*			*2927*
Segment 3	*--*	*--*	*--*			
INSIDE WALL AREAS COPIED FROM STRUCTURE BACKFILL AREAS (211-09226)						
NB Wall						
275+70.47	*281+45.25*	*4*	*27*			*8903*
281+45.25	*282+95.44*	*27*	*27*			*4055*
282+95.44	*288+70.49*	*27*	*4*			*8908*
SB Wall						
275+70.47	*281+45.58*	*4*	*27*			*8914*
281+45.58	*282+95.77*	*27*	*27*			*4055*
282+95.77	*288+70.49*	*27*	*4*			*8902*
					TOTAL =	***56235.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *SRS* *11/24/12* *Checked By:* *srp* *11/26/12*

731-93947 **LEVELING PAD, CONCRETE** **3,864 LFT**

Description	*Length (ft)*					
NE Wall	*361.76*					*362*
SE Wall	*336.09*					*336*
SW Wall	*299.42*					*299*
NW Wall	*266.13*					*266*
INSIDE WALL AREAS COPIED FROM STRUCTURE BACKFILL AREAS (211-09226)						
NB Wall						
275+70.47	*281+45.25*					*575*
281+45.25	*282+95.44*					*150*
282+95.44	*288+70.49*					*575*
SB Wall						
275+70.47	*281+45.58*					*575*
281+45.58	*282+95.77*					*150*
282+95.77	*288+70.49*					*575*

SUBTOTAL (THIS PAGE) = ***3863.4***

TOTAL = ***3863.4***

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: *BWS* *4/26/12* *Checked By:* *BWC* *11/24/12*

801-01093 **TEMPORARY WORKSITE SPEED LIMIT SIGN ASSEMBLY** **4 EACH**

Description						*Each*
Assumptions: Used MOT Plan for 126th and Keystone as example MOT Plan.						
Use 2 at each end of SR 37 for every phase of MOT						*4*

SUBTOTAL (THIS PAGE) = ***4.0***

TOTAL = ***4.0***

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 4/26/12 *Checked By: BWC 11/24/12*

801-03290 **CONSTRUCTION SIGN, C** **2 EACH**

Description						*Each*
Assumptions: Used MOT Plan for 126th and Keystone as example MOT Plan.						
Use 1 at each end of SR 37 for every phase of MOT						*2*

SUBTOTAL (THIS PAGE) = 2.0

TOTAL = 2.0

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 4/26/12 *Checked By: BWC 11/24/12*

801-04308 **ROAD CLOSURE SIGN ASSEMBLY** **4 EACH**

Description						*Each*
Assumptions: Used MOT Plan for 126th and Keystone as example MOT Plan.						
MOT Phase III						
Use one at each end of the S-Line						*2*
MOT Phase IV						
Use one at each end of the S-Line						*2*
MOT Phase V						
Use one at each end of the S-Line						*4*
				Highest Total =		***4***

SUBTOTAL (THIS PAGE) = ***4.0***

TOTAL = ***4.0***

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 4/26/12 *Checked By: BWC 11/24/12*

801-06625 **DETOUR ROUTE MARKER ASSEMBLY** **18 EACH**

Description						*Each*
Assumptions: Used MOT Plan for 126th and Keystone as example MOT Plan.						
MOT Phase III						
					Total =	*18*
MOT Phase IV						
					Total =	*18*
MOT Phase V						
					Total =	*18*
					Highest Total =	***18***

SUBTOTAL (THIS PAGE) = ***18.0***

TOTAL = ***18.0***

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: *BWS* *4/26/12* *Checked By:* *BWC* *11/24/12*

801-06640 **CONSTRUCTION SIGN, A** **24 EACH**

Description						*Each*
Assumptions: Used MOT Plan for 126th and Keystone as example MOT Plan.						
MOT Phase I						
Begin Project						*8*
Midde of project						*4*
End Project						*8*
					Total =	*20*
MOT Phase II						
Begin Project						*8*
Midde of project						*2*
End Project						*8*
					Total =	*18*
MOT Phase III						
Begin Project						*8*
Midde of project						*1*
End Project						*8*
					Total =	*17*
MOT Phase IV						
Begin Project						*8*
Midde of project						*8*
End Project						*8*
					Total =	*24*
MOT Phase V						
Begin Project						*8*
Midde of project						*2*
End Project						*8*
					Total =	*18*
					Highest Total =	***24***

SUBTOTAL (THIS PAGE) = ***24.0***

TOTAL = ***24.0***

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 4/26/12 *Checked By: BWC 11/24/12*

801-06645 **CONSTRUCTION SIGN, B** **4 EACH**

Description						***Each***
Assumptions: Used MOT Plan for 126th and Keystone as example MOT Plan.						
MOT Phase I						
Begin Project						*2*
Midde of project						*0*
End Project						*2*
					Total =	*4*
MOT Phase II						
Begin Project						*2*
Midde of project						*0*
End Project						*2*
					Total =	*4*
MOT Phase III						
Begin Project						*3*
Midde of project						*1*
End Project						*0*
					Total =	*4*
MOT Phase IV						
Begin Project						*2*
Midde of project						*0*
End Project						*0*
					Total =	*2*
MOT Phase V						
Begin Project						*0*
Midde of project						*0*
End Project						*0*
					Total =	*0*
					Highest Total =	***4***

SUBTOTAL (THIS PAGE) = ***4.0***

TOTAL = ***4.0***

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 4/26/12 *Checked By: BWC 11/24/12*

801-06710 **FLASHING ARROW SIGN** **510 DAY**

Description						***Day***
Assumptions: Used MOT Plan for 126th and Keystone as example MOT Plan.						
MOT Phase I						
Begin Project						*45*
Midde of project						*0*
End Project						*45*
					Total =	*90*
MOT Phase II						
Begin Project						*0*
Midde of project						*0*
End Project						*0*
					Total =	*0*
MOT Phase III						
Begin Project						*105*
Midde of project						*0*
End Project						*105*
					Total =	*210*
MOT Phase IV						
Begin Project						*105*
Midde of project						*0*
End Project						*105*
					Total =	*210*
MOT Phase V						
Begin Project						*0*
Midde of project						*0*
End Project						*0*
					Total =	*0*
					Total =	***510***

SUBTOTAL (THIS PAGE) = ***510.0***

TOTAL = ***510.0***

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 4/26/12 *Checked By: BWC 11/24/12*

801-06775 **MAINTAINING TRAFFIC** **1 LS**

Description						*LS*
Assumptions: Used MOT Plan for 126th and Keystone as example MOT Plan.						
ENTIRE PROJECT						*1*
	Assume 2% of Total Project Cost					

SUBTOTAL (THIS PAGE) = 1.0

TOTAL = 1.0

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 4/26/12 *Checked By: BWC 11/24/12*

801-07024 **ENERGY ABSORBING TERMINAL, CZ, TL-3** **1 EACH**

Description						***Each***
Assumptions: Used MOT Plan for 126th and Keystone as example MOT Plan.						
Use at begin project for MOT Phase III						*1*
					Highest Total =	***1***
					SUBTOTAL (THIS PAGE) =	***1.0***
					TOTAL =	***1.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *BWS* *4/26/12* *Checked By:* *BWC* *11/24/12*

801-07118 **BARRICADE, III-A** **228 LFT**

Description						***Length (ft)***
Assumptions: Used MOT Plan for 126th and Keystone as example MOT Plan.						
MOT Phase I						
Begin Project						*0*
Midde of project						*0*
End Project						*0*
					Total =	*0*
MOT Phase II						
Begin Project						*0*
Midde of project						*0*
End Project						*0*
					Total =	*0*
MOT Phase III						
Begin Project						*36*
Midde of project						*156*
End Project						*36*
					Total =	*228*
MOT Phase IV						
Begin Project						
Midde of project						*72*
End Project						*96*
					Total =	*168*
MOT Phase V						
Begin Project						*12*
Midde of project						*132*
End Project						*12*
					Total =	*156*
					Highest Total =	***228***

SUBTOTAL (THIS PAGE) = ***228.0***

TOTAL = ***228.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 4/26/12 *Checked By: BWC 11/24/12*

801-07119 **BARRICADE, III-B** **48 LFT**

Description						*Length (ft)*
Assumptions: Used MOT Plan for 126th and Keystone as example MOT Plan.						
MOT Phase I						
Begin Project						*0*
Midde of project						*0*
End Project						*0*
					Total =	*0*
MOT Phase II						
Begin Project						*0*
Midde of project						*0*
End Project						*0*
					Total =	*0*
MOT Phase III						
Begin Project						*24*
Midde of project						*0*
End Project						*24*
					Total =	*48*
MOT Phase IV						
Begin Project						*24*
Midde of project						*0*
End Project						*24*
					Total =	*48*
MOT Phase V						
Begin Project						*0*
Midde of project						*0*
End Project						*0*
					Total =	*0*
					Highest Total =	***48***
					SUBTOTAL (THIS PAGE) =	***48.0***
					TOTAL =	***48.0***

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 4/26/12 *Checked By: BWC 11/24/12*

801-08400 **TEMPORARY TRAFFIC BARRIER, TYPE 1** **2,600 LFT**

Description						*Length (ft)*
Assumptions: Used MOT Plan for 126th and Keystone as example MOT Plan.						
Use length of SR 37 for MOT Phase III						*2600*
This phase requires more that Phase IV, therefore will use Phase III quantity						
Phase III has temp traffic barrier, type 1 between NB and SB traffic, all traffic on SB lanes and widening.						
					Highest Total =	***2600***
					SUBTOTAL (THIS PAGE) =	***2600.0***
					TOTAL =	***2600.0***

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SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 4/26/12 *Checked By: BWC 11/24/12*

801-08507 **TEMPORARY TRAFFIC BARRIER, TYPE 1, ANCHORED** **296 LFT**

Description						*Length (ft)*
Assumptions: Used MOT Plan for 126th and Keystone as example MOT Plan.						
Will need at the end of the project for MOT Phase III						*168*
Will need at the end of the project for MOT Phase IV						*296*
					Highest Total =	***296***
					SUBTOTAL (THIS PAGE) =	***296.0***
					TOTAL =	***296.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 4/26/12 *Checked By: BWC 11/24/12*

801-08508 **TEMPORARY TRAFFIC BARRIER, TYPE 2, ANCHORED** **2,600 LFT**

Description						***Length (ft)***
Assumptions: Used MOT Plan for 126th and Keystone as example MOT Plan.						
Will need for the length of the project for MOT Phase III						*2600*
Will need at the end of the project for MOT Phase IV						*355*
Used to protect dropoff next to NB outside lane when constructing depressed section of NB SR 37.						
					Highest Total =	***2600***

SUBTOTAL (THIS PAGE) = ***2600.0***

TOTAL = ***2600.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: BWS 4/26/12 *Checked By: BWC 11/24/12*

801-09133 **TEMPORARY CHANGEABLE MESSAGE SIGN** **2 EACH**

Description						*Each*
Assumptions: Used MOT Plan for 126th and Keystone as example MOT Plan.						
Assume one at each end of the project on SR 37 for the duration of the project.						*2*

SUBTOTAL (THIS PAGE) = 2.0

TOTAL = 2.0

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *BWS* *4/26/12* *Checked By:* *BWC* *11/24/12*

801-52817

TEMPORARY CROSSOVER, B

2
EACH

Description						*Each*
1 at each end of SR 37 for MOT Phase III						*2.0*

SUBTOTAL (THIS PAGE) = ***2.0***

TOTAL = ***2.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: JPS 11/28/12 *Checked By: BWC 12/5/12*

802-05701 **SIGN POST, SQUARE, TYPE 1, REINFORCED ANCHOR BASE** **340 LFT**

Description		*Post Length*	*Posts per Sign*	*No. of Signs*		
One-way Sign		*10.0*	*1*	*4*		*40.0*
RAB Ahead Sign		*10.0*	*1*	*4*		*40.0*
Yield Sign		*10.0*	*1*	*4*		*40.0*
Street Name Sign		*10.0*	*2*	*4*		*80.0*
Speed Limit Sign		*15.0*	*2*	*2*		*60.0*
State Route Marker		*10.0*	*1*	*8*		*80.0*

SUBTOTAL (THIS PAGE) = 340.0

TOTAL = 340.0

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *JPS* *11/28/12* *Checked By:* *BWC* *12/5/12*

802-07057 **SIGN, PANEL, WITH LEGEND** **429** **SFT**

Description		***Height (in)***	***Width (in)***	***No. of Signs***		
1/2 Mile Ahead		*150*	*132*	*2*		*275.0*
Exit Street Name		*132*	*84*	*2*		*154.0*

SUBTOTAL (THIS PAGE) = ***429.0***

TOTAL = ***429.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: JPS 11/28/12 *Checked By: BWC 12/5/12*

802-07138 **WIDE FLANGE SIGN POST SUPPORT FOUNDATION, IX** **2 EACH**

Description						
Exit Street Name						*2.0*

SUBTOTAL (THIS PAGE) = ***2.0***

TOTAL = ***2.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: JPS 11/28/12 *Checked By: BWC 12/5/12*

802-07159 **CANTILEVER SIGN SUPPORT FOUNDATION, II** **2 EACH**

Description						
1/2 Mile Ahead						*2.0*

SUBTOTAL (THIS PAGE) = ***2.0***

TOTAL = ***2.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: JPS 11/28/12 *Checked By: BWC 12/5/12*

802-09840 **SIGN, SHEET, WITH LEGEND 0.100 IN THICKNESS** **115 SFT**

Description		*Width (in)*	*Height (in)*	*No. of Signs*		
One-way Sign		*36*	*12*	*4*		*12.0*
RAB Ahead Sign		*30*	*30*	*4*		*25.0*
Yield Sign		*36*	*36*	*4*		*18.0*
Street Name Sign		*36*	*12*	*4*		*12.0*
Speed Limit Sign		*36*	*48*	*2*		*24.0*
State Route Marker						
	Route Sign	*24*	*24*	*4*		*16.0*
	Direction	*24*	*12*	*4*		*8.0*

SUBTOTAL (THIS PAGE) = 115.0

TOTAL = 115.0

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *JPS* *11/28/12* *Checked By:* *BWC* *12/5/12*

802-76095 **STRUCTURAL STEEL, BREAKAWAY** **681 LBS**

Description	***L1***	***L2***	***W1***	***W2***		
Exit w/ Street Name						
W8x13	*20.00*	*25.00*	*307.58*	*372.58*		***680.2***

SUBTOTAL (THIS PAGE) = ***680.2***

TOTAL = ***680.2***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: JPS 11/28/12 *Checked By: BWC 12/5/12*

802-76135 **OVERHEAD SIGN STRUCTURE, CANTILEVER SINGLE ARM** **1 EACH**

Description						
1/2 Mile Ahead						*1.0*

SUBTOTAL (THIS PAGE) = ***1.0***

TOTAL = ***1.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *4/19/12* *Checked By:* *BWS* *11/24/12*

804-06770 **DELINEATOR POST** **9 EACH**

						EACH
Total # of Outlets						*9.0*

TOTAL = ***9.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *5/8/12* *Checked By:* *BWS* *11/24/12*

808-10031 **LINE, MULTI-COMPONENT, BROKEN, WHITE, 4 IN** **1,771 LFT**

Begin Sta.	End Sta.	Begin Offset	End Offset		*Factor*	*LFT*
SR 37	**Northbound**					
268+42.63	293+28.79	19.3	19.3		*0.25*	621.5
268+42.63	271+14.98	31.3	31.3		*0.25*	68.1
289+88.09	293+28.79	31.3	31.3		*0.25*	85.2
	Southbound					
268+42.63	293+28.79	-19.3	-19.3		*0.25*	621.5
268+42.63	273+81.00	-31.3	-31.3		*0.25*	134.6
289+37.38	293+28.79	-31.3	-31.3		*0.25*	97.9
Pleasant St.						
10+00.00	11+41.15	-11.8	-16.0		*0.25*	35.3
11+00.08	11+29.37	16.0	16.0		*0.25*	7.3
Area by AutoCAD	(South of Pleasant St. Centerline)			*120.00*	*0.25*	30.0
		West to East		*33.10*	*0.25*	8.3
				58.55	*0.25*	14.6
		West to East		*67.49*	*0.25*	16.9
				58.30	*0.25*	14.6
				32.39	*0.25*	8.1
17+73.85	18+01.17	16.0	16.0		*0.25*	6.8

TOTAL = 1770.7

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *MAC* *Checked By:* *BWS* *11/24/12*

808-10033 **LINE, MULTI-COMPONENT, SOLID, WHITE, 4 IN** **10,435 LFT**

Begin Sta.	End Sta.	Begin Offset	End Offset			*LFT*
SR 37	**Northbound**					
275+52.48	293+28.79	52.8	43.2			1776.3
268+42.63	281+52.98	43.3	166.5	*NB to End of Ramp*		1316.1
282+87.70	293+28.79	159.7	76.8	*Beginning of Ramp to NB*		1044.4
279+86.12	281+43.69	64.8	129.5	*Ramp*		170.4
	Southbound					
269+18.74	293+28.79	-43.3	-43.3			2410.1
268+42.63	281+53.86	-76.8	-160.6			1313.9
282+88.28	293+28.79	-166.1	-76.8			1044.3
284+54.89	282+97.33	-64.8	-129.5	*Ramp*		170.4
Pleasant St.						
11+41.15	12+87.03	-16.0	-52.7			150.4
11+29.37	12+63.63	16.0	33.3			135.4
16+31.63	17+99.96	-31.9	-20.4			168.7
16+06.10	17+73.85	52.9	16.0			171.8
Area by AutoCAD	(South of Pleasant St. Centerline)					281.1
		West to East				
	(North of Pleasant St. Centerline)					281.1
		West to East				

TOTAL = ***10434.3***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: DJZ 4/11/12 *Checked By: BWS 11/24/12*

808-10034 **LINE, MULTI-COMPONENT, SOLID, YELLOW, 4 IN** **10,573 LFT**

Begin Sta.	End Sta.	Begin Offset	End Offset			*LFT*
SR 37	**Northbound**					
268+42.63	293+28.79	7.3	7.3			2486.2
275+52.48	281+46.48	52.8	109.7			596.7
282+93.39	293+28.79	123.4	64.8			1037.1
	Southbound					
268+42.63	293+28.79	-7.3	-7.3			2486.2
269+18.98	281+47.63	-43.3	-123.3			1231.3
282+94.55	293+28.79	-109.7	-64.8			1035.2
Pleasant Street						
10+00.05	12+56.78	12.0	10.0			256.7
10+00.05	12+62.21	12.0	-26.7			265.0
16+31.26	18+01.22	26.7	4.0			171.5
16+36.69	18+01.22	-10.0	-8.4			164.5
	Area by AutoCAD (Dogbone Edge of Curb)					842.2

TOTAL = 10572.5

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: DJZ 4/11/12 *Checked By: BWS 11/24/12*

808-10037 **LINE, MULTI-COMPONENT, SOLID, WHITE, 8 IN** **1,028 LFT**

Begin Sta.	End Sta.	Begin Offset	End Offset			*LFT*
SR 37	**NB Exit Gore**					
271+14.98	275+52.48	31.3	31.3			437.5
271+14.98	275+52.48	35.3	52.8			437.5
	SB Ent. Gore					
268+42.63	269+18.98	-46.3	-43.3			76.3
268+42.63	269+18.98	-64.8	-64.8			76.3

TOTAL = 1027.6

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *4/11/12* *Checked By:* *BWS* *11/24/12*

808-75071 **PAVEMENT MESSAGE MARKING, PREFORMED PLASTIC, LANE INDICATION ARROW** **8 EACH**

Station						*EACH*
Pleasant Street	*Eastbound*					*2.0*
	Westbound					*2.0*
SR 37	*Northbound*					*2.0*
	Southbound					*2.0*

TOTAL = ***8.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: *DJZ* *4/11/12* *Checked By:* *BWS* *11/24/12*

808-75510 **TRANSVERSE MARKINGS, PREFORMED PLASTIC, CROSSHATCH LINE, WHITE, 24 IN** **264 LFT**

Begin Sta.	End Sta.	Begin Offset	End Offset			*LFT*
SR 37	*Northbound Entrance*					
271+14.98	275+52.48					206.0
	Southbound Entrance					
268+42.63	269+18.74					*58.0*

TOTAL = ***264.0***

10-703

SR 37 MOBILITY STUDY
PLEASANT STREET

By: DJZ 4/12/12 *Checked By: BWS 11/24/12*

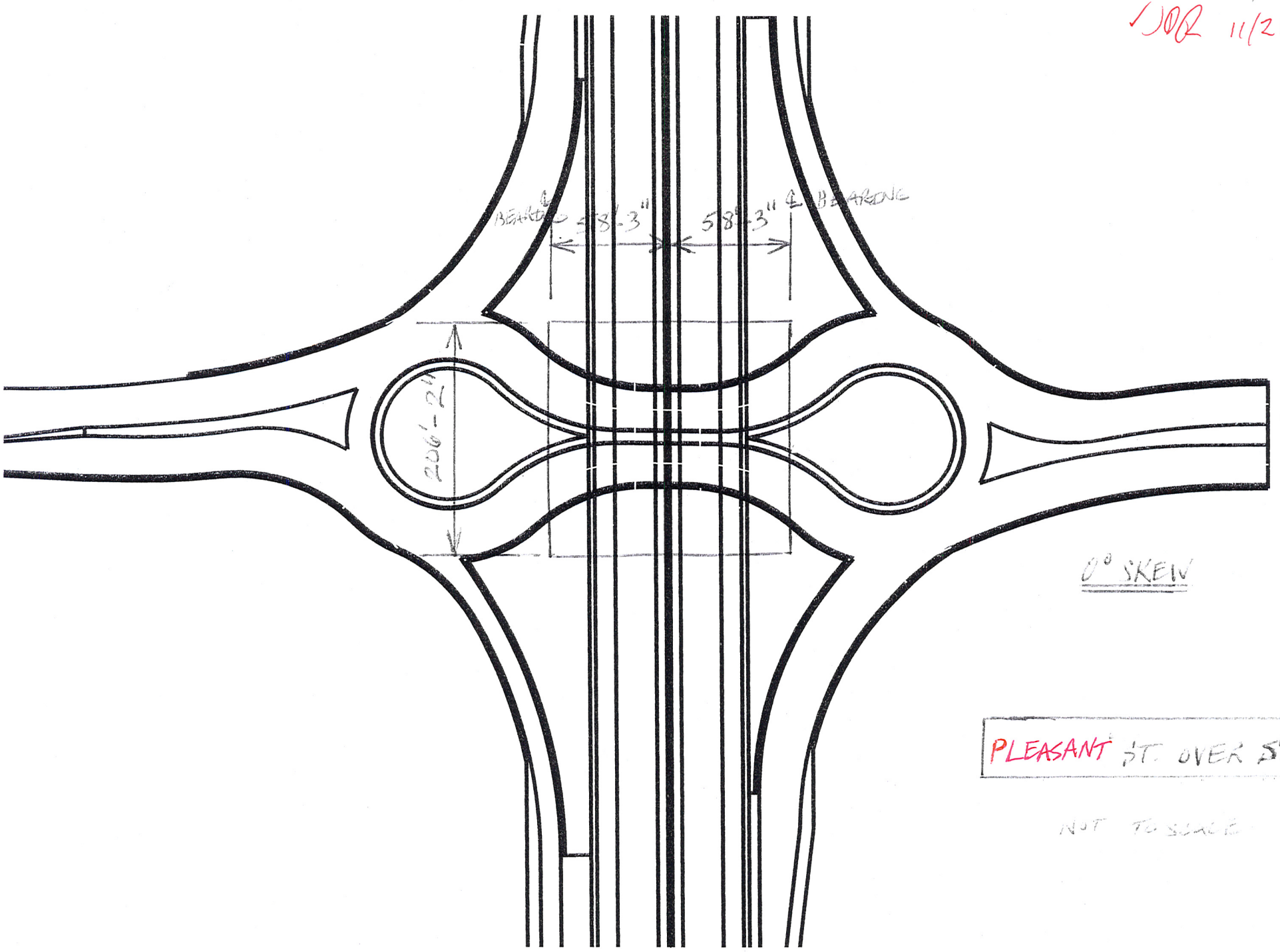
808-75998 **SNOWPLOWABLE RAISED PAVEMENT MARKER** **251 EACH**

Begin Station	*End Station*		*Length*	*Spacing*		*EACH*
SR 37	***Northbound***					
268+42.63	293+28.79		*2486.2*	*80.0*		*32.0*
268+42.63	271+14.98		*272.3*	*80.0*		*4.0*
289+88.09	293+28.79		*340.7*	*80.0*		*5.0*
271+14.96	275+52.48	*Exit Gore*	*437.5*	*40.0*		*11.0*
271+14.96	275+52.48	*Exit Gore*	*437.5*	*40.0*		*11.0*
275+52.48	280+06.66	*Exit Ramp*	*454.2*	*40.0*		*12.0*
280+06.66	281+46.48	*Exit Ramp*	*139.8*	*40.0*		*4.0*
282+93.39	284+71.51	*Entrance Ramp*	*178.1*	*40.0*		*5.0*
284+71.51	293+28.79	*Entrance Ramp*	*857.3*	*40.0*		*22.0*
	Southbound					
268+42.63	293+28.79		*2486.2*	*80.0*		*32.0*
268+42.63	273+81.00		*538.4*	*80.0*		*7.0*
289+37.38	293+28.79		*391.4*	*80.0*		*5.0*
268+42.63	269+18.98	*Entrance Gore*	*76.3*	*40.0*		*2.0*
268+42.63	269+18.98	*Entrance Gore*	*76.3*	*40.0*		*2.0*
269+18.98	279+69.52	*Entrance Ramp*	*1050.5*	*40.0*		*27.0*
279+69.52	281+47.63	*Entrance Ramp*	*178.1*	*40.0*		*5.0*
282+94.55	284+34.36	*Exit Ramp*	*139.8*	*40.0*		*4.0*
284+34.36	293+28.79	*Exit Ramp*	*894.4*	*40.0*		*23.0*
Pleasant St.						
11+00.00	12+60.00		*160.0*	*40.0*		*4.0*
10+00.00	15+82.00		*582.0*	*40.0*		*15.0*
13+11.00	14+47.00		*136.0*	*40.0*		*4.0*
14+47.00	15+70.00		*123.0*	*40.0*		*4.0*
16+31.00	18+01.17		*170.2*	*40.0*		*5.0*
15+70.00	18+01.17		*231.2*	*40.0*		*6.0*
					TOTAL =	***251.0***

BRIDGE QUANTITIES

BRIDGE GEOMETRY
PLEASANT STREET OVER SR 37

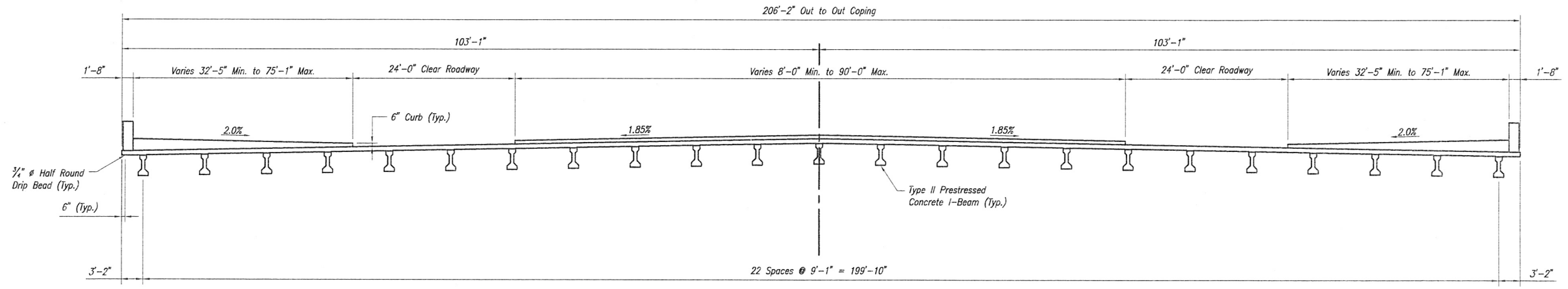
JTB 11/15/12
✓ JDQ 11/21/12



0° SKEW

PLEASANT ST. OVER SR 37

NOT TO SCALE



TYPICAL SECTION

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

UNITED Consulting
1625 N. Post Road
Indianapolis, IN 46219
Phone 317-895-2555
Fax 317-895-2596
www.ucindy.com

RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER DATE

DESIGNED: _____ DRAWN: _____

CHECKED: _____ CHECKED: _____

INDIANA
DEPARTMENT OF TRANSPORTATION

PLEASANT ST.
OVER SR 37

HORIZONTAL SCALE	BRIDGE FILE
VERTICAL SCALE	DESIGNATION
SURVEY BOOK	SHEETS
	of
CONTRACT	PROJECT

File Name: P:\CB\16-7031\Bridge\Design\Preliminary Design\Pleasant St. Over SR37 #1\Typical Section.dwg Plot Date: 11/19/2012 Plotted By: Moffatt, Andrew J.

Pleasant St. Over SR37

Des by JTB 11/12/2012

Chk by JTB 11/14/12

Rev by _____

Summary of Bridge Quantities Structure Number _____

INDOT Item Code	Item Description	unit	Quantity	
105-06845	CONSTRUCTION ENGINEERING	LS	3%	
110-01001	MOBILIZATION AND DEMOBILIZATION	LS	5%	
203-02020	EXCAVATION, FOUNDATION, UNCLASSIFIED	CYS	557	
211-02050	B BORROW	CYS	557	
302-07455	DENSE GRADED SUBBASE	CYS	156	
609-06259	REINFORCED CONCRETE BRIDGE APPROACH, 12 IN.	SYS	939	
701-06011	DYNAMIC PILE LOAD TEST	EACH	3	
701-09559	TEST PILE, DYNAMIC, RESTRIKE	EACH	3	
701-09690	TEST PILE, DYNAMIC, 14 IN NON-PRODUCTION	LFT	210	
701-08122	PILE, STEEL PIPE, 0.375", 14	LFT	5,580	
702-51005	CONCRETE,A,SUBSTRUCTURE	CYS	300	
702-51015	CONCRETE,B,FOOTINGS	CYS	206	
703-06028	REINFORCING BARS	LBS	61,660	
703-06029	REINFORCING BARS, EPOXY COATED	LBS	443,858	
704-51002	CONCRETE, C, SUPERSTRUCTURE	CYS	1,696	
706-09959	RAILING, CONCRETE, FT	LFT	236	
707-05983	STRUCTURAL MEMBERS, CONCRETE I-BEAM, II, 36 IN. X 12 IN.	LFT	2,680	
709-51821	SURFACE SEAL	SFT	29,198	estimated

Rev. 9/2/09

Pleasant St. over SR 37

Des by JTB 11/12/2012
Chk by JTB 11/14/12
Rev by _____

Proposed Structure # is _____

Pleasant Street over SR 37

	Road Over		Under	
Design Standards =	4R		4R	
Functional Classification =	Urban Collector		Urban Arterial	
ADT =	xxxx	(yr. 2030)	xxxx	
Design Speed =	35	mph	55	
Vertical Clearance Req'd =	16.5	feet		
Skew =	0	degrees		
Calculated C-C End Brg. Length =	116.5	feet		
USE	116.5	feet		
Span Configuration Anticipated =	1	@	58.25	feet
	1	@	58.25	feet

Rev. 9/2/09

Pleasant St. over SR 37

Des by JTB 11/12/2012
Chk by JDR 11/14/12
Rev by

Proposed Structure # is 0

Pleasant Street over SR 37

Number of Spans = 2 spans

O-O Coping Width = 206.17 feet

C-C End Brg Length = 116.5 feet

Skew = 0.0000 degrees

O-O Bridge Length = 118.0 feet

Clear Roadway Width = 202.83 feet

Slab Thickness = 8 inches

Number of Piers units = 1

Number of Substructure units = 3

Twin Structure = NO

Type of Slope Wall = MSE Wall

Pleasant St. over SR 37

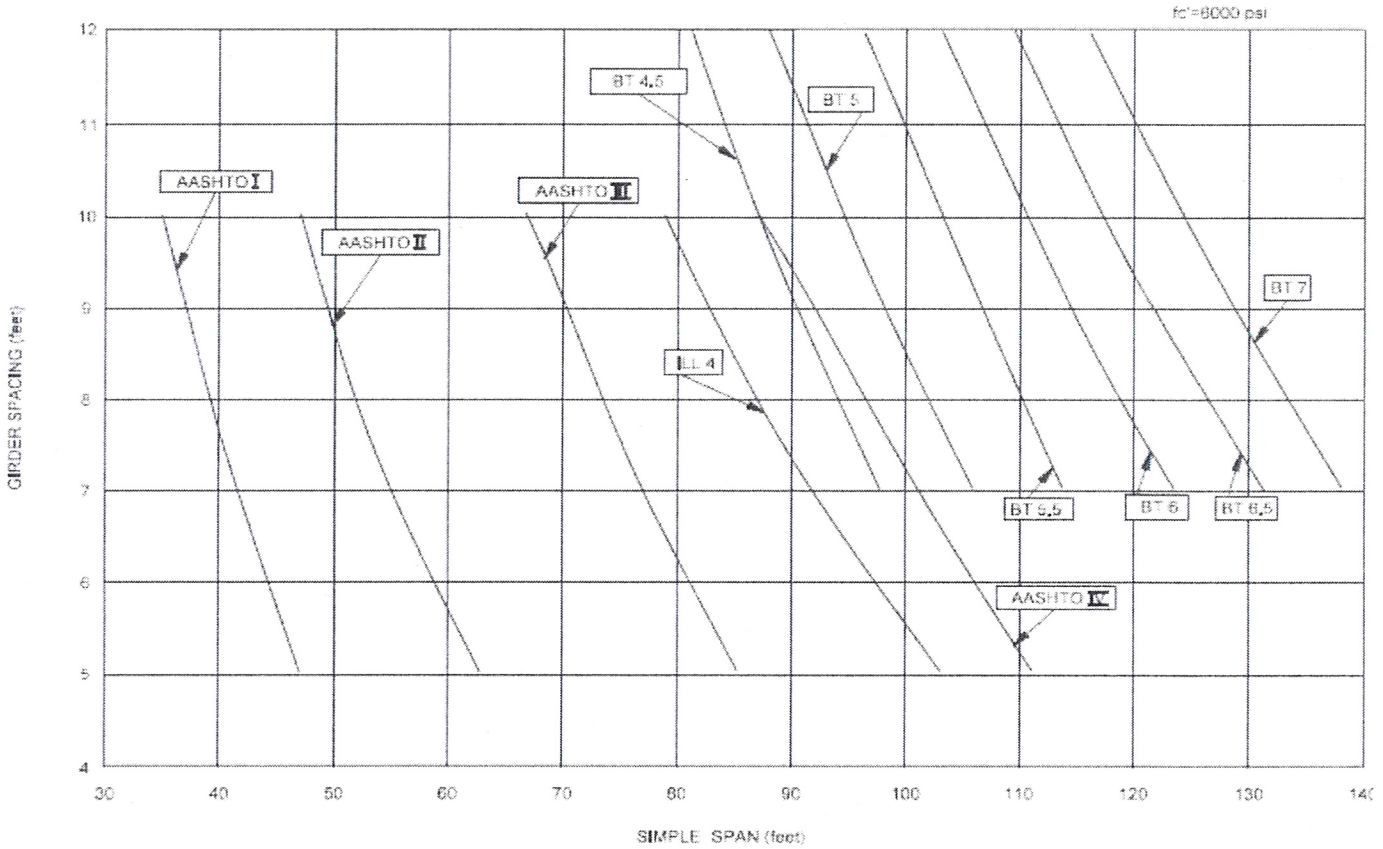
Des by JTB 11/12/2012

Chk by 11/14/12

Rev by

Beam Quantities

Structure Number 0
Pleasant Street over SR 37



PRESTRESSED CONCRETE I-BEAM SELECTION CHART

Figure 59-3K

Beam Type = STRUCTURAL MEMBERS, CONCRETE I-BEAM, II, 36 IN. X 12 IN.

Overhang to be =	3.1705	ft
Spacing to be =	9.083	ft
out to out width =	206.17	ft
Beam Length =	116.50	ft
Beams Needed =	23	ft
Twin Structure =	NO	
Length Needed =	**2,680**	ft

Pleasant St. over SR 37

Des by JTB 11/12/2012

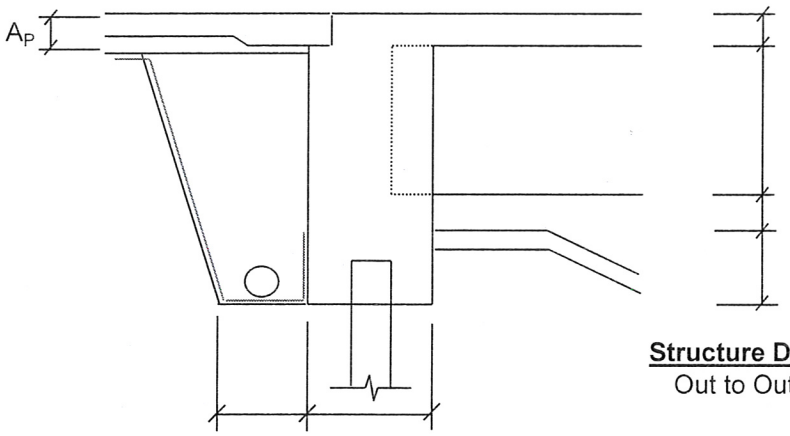
Chk by 11/14/12

Rev by _____

Bent Quantities

Structure Number 0
Pleasant Street over SR 37

A_p= 1.5 ft



D_s = 0.83 ft

D_g = 3.00 ft

D_b = 1 ft

D_c = 3 ft

Structure Data

Out to Out Coping	206.17	ft
Skew	0	degrees
Wingwall Thickness (W_t)	0	ft
Number of Bents (N_b)	2	

Reinforcing Rates

Bent Body	145	#/CY
Wingwalls	145	#/CY

Calculated Constants

Bent Length (L_B) = O-to-O Coping / cos(skew) =	206.17	ft
Total Bent Depth (D_T) = D_s + D_g + D_b + D_c =	7.83	ft
Wing Length (W_L) = (D_T-D_c) * 2+1' =	0.00	ft

Concrete Quantities

Class C, Superstructure

Bent Body: V_B = N_b * (Tb * (D_T-D_s) * L_B)/27

V_B = **267.3** cubic yards

Wingwalls: V_W = N_b * (2 * D_T * W_L * W_t)/27

V_W = **0.0** cubic yards

Total Class C, Superstructure **267.3** cubic yards

Epoxy Coated Reinforcing Bar Quantities

Bent Body	**38,752**	lbs.
Wingwalls	**00**	lbs.
Total	**38,752**	lbs.

Piling Quantities

Number of Piles per Bent	23	piles
Estimated Pile Length	60	ft.
Total Length of Piles	**2,760**	linear feet

Pipe, End Bent Drain, 6" = N_b * (L_B + 2 * (W_L + 3 * D_T) = **0.0** **ft.**

Geotextiles = N_b * ((D_T - A_P) * 1.031 + 4.5') * L_B/9 = **0.0** **sys**

Aggregate for End Bent Backfill

V_{bf} = ((D_T-A_P)/4 +1.5) +1.5)/2 *(D_T-A_P) * L_B * N_b

V_{bf} = **0** cubic yards

Rev. 9/2/09

Pleasant St. over SR 37

Des by JTB 11/12/2012

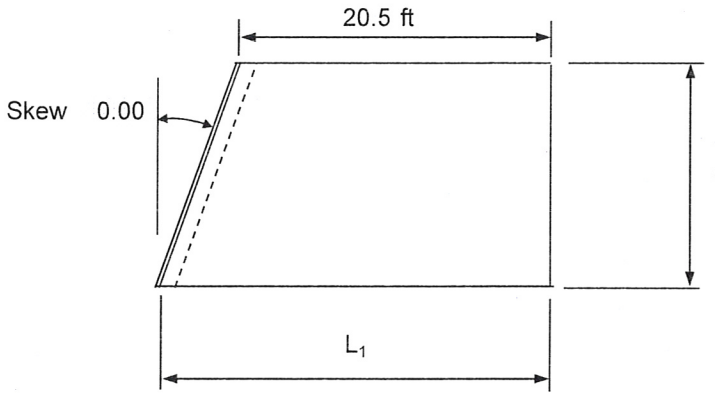
Chk by 11/14/12

Rev by

Approach Slab Quantities

Structure Number 0
Pleasant Street over SR 37

Number or Approach Slabs 2



O-to-O Coping W_c = 206.17 ft.

L_1 = 20.5 + (Wc X Tan skew)

L_1 = 20.50 ft.

D_{sub} = Depth of Aggregate (inches) = 6

Reinforced Concrete Bridge Approach (A) = (L1 +20.5)/2 * Wc /9

A = 470 sys per approach

Dense Graded Subbase (T_{base}) = A * D_{sub}

T_{base} = 78.0 cys per approach

Epoxy Coated Reinforcing Bars

Reinforcement Rates	35	#/sy
Total Weight	16,436	Lbs. per approach

Grand Totals

A =	**939**	**sys**
T_{base} =	**156**	**cys**
Reinforcing	**32,872**	**Lbs.**

Pleasant St. over SR 37

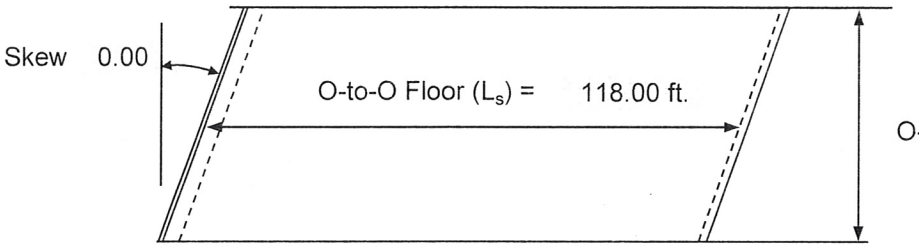
Des by JTB 11/12/2012

Chk by JDP 11/14/12

Rev by _____

Deck Quantities

Structure Number 0
Pleasant Street over SR 37



O-to-O Coping W_c = 206.17 ft.

Slab Thickness T_s = 8.00 inches
Coping Depth Dc= 9 inches
Clear Roadway Width CR= 202.8 ft

Twin Structure = NO

# of Bridge Rail Trans = **4**

Concrete Quantities

Class C, Superstructure

Deck Slab $V_D = (L_s * W_c * T_s)/27$

V_D = 600.7 cubic yards

Sidewalk Vs = (Ls * (Wc - 60') * 1')/27
Vs = 638.8 cubic yards

Concrete in fillets over beams and in thickened copings
Increase deck concrete by 15%

V_T = 1428.7 cys cubic yards

Pier Diaphragm - Class, C, Superstr.
(add to Concrete, C, Superstructure)

Vol = 3.83'*3.5'*199.66'*1/27 = 99.1 cys

Bridge Railing

Area of Rail A_r = 3.64 Sq. Ft.
Perimeter P = 8.65 Ft.
LFT = **236**
V_R = $(L_s * A_r) / 27$
V_R = 31.9 cubic Yards

Surface Seal

Deck = $L_s * W_c$ =	24328	square feet
Coping = $L_s * D_c * 2$ =	787	square feet
Rail = $L_s * P * 2$ =	4083	square feet
Total	**29,198**	square feet

Epoxy Coated Reinforcing Bars

Reinforcement Rates 250 #/cy
Deck 250 #/cy
Rail 330 #/cy

Deck	357175	Lbs.
Rail	10527	Lbs.
Trans.	4532	Lbs.
Total Weight	**372,234**	Lbs.

Grates, Basins, and Fittings, Cast Iron

N_G = 0 each
Weight per Drain = 1000 Lbs.
Total Weight **0** Lbs.

Roadway Drain (SQ or OS)

N_G = **0** each

Pleasant St. over SR 37

Des by JTB 11/12/2012

Chk by JTB 11/14/12

Rev by _____

Excavation Quantities

Structure Number 0
Pleasant Street over SR 37

Number of Piers N_p= 1

D_c = 6 ft.

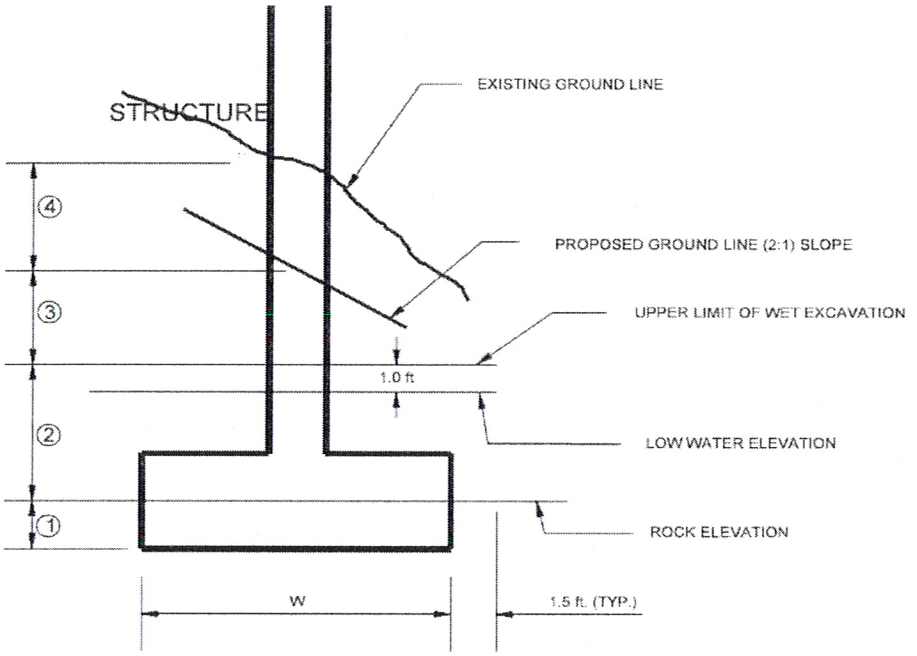
D_{dry} = 0 ft.

D_{wet} = 0 ft.

D_x = 0 ft.

W = 9 ft.

L = 206 ft.



Class X Excavation (Vx) = N_p X L X W X DX/27 =	0	cubic yards

Wet Excavation (V_{wet}) = Np X (L+3)(W+3)(Dwet)/27 =	0	cubic yards

Dry Excavation (V_{dry}) = N_p X (L+3)(W+3)(D_{dry})/27 =	0	cubic yards

Fnd. Exc.(Unclass.) (V_c) = Np X (L+3)(W+3)(Dc)/27 =	557	cubic yards

Is this structure over a waterway? **No**

B-Borrow (V_b) = Sum of Excavation Items =	557	cubic yards

Rev. 9/2/09

Pleasant St. over SR 37

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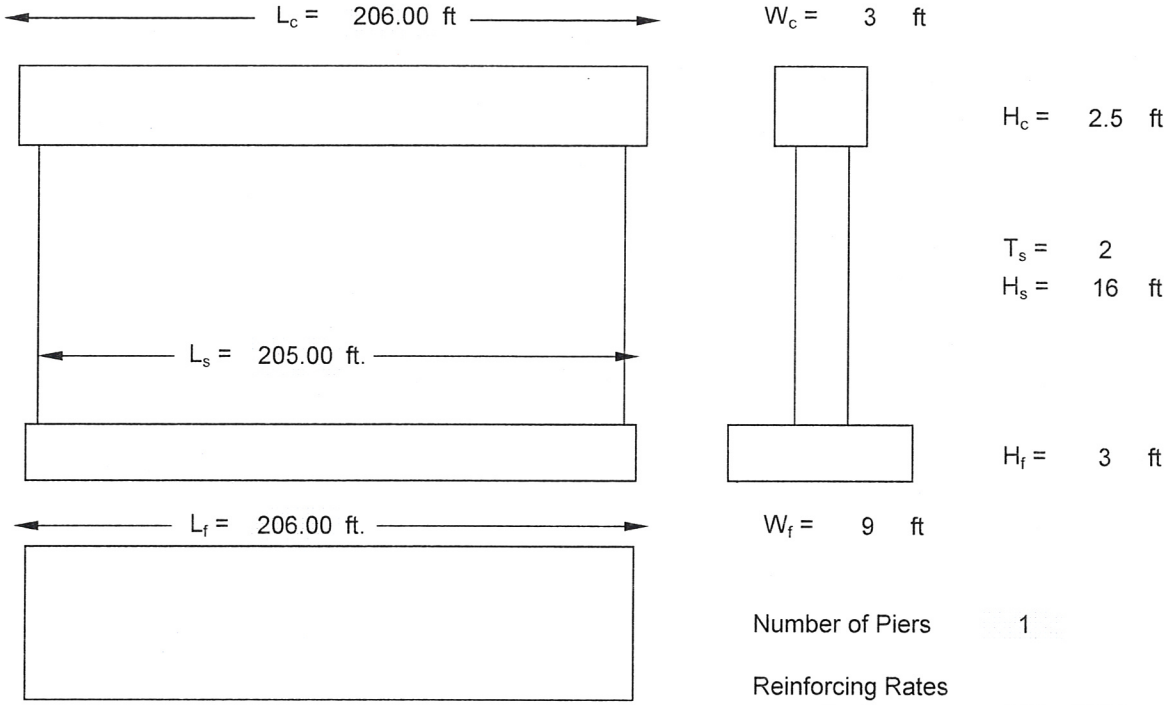
Pier Quantities

Structure Number 0
Pleasant Street over SR 37



Number of Piers 1

Reinforcing Rates

Footings	110	#/CY
Stem & Cap	130	#/CY

Concrete Quantities

Class B, Footing

V_B = L_f X W_f X H_f X 1/27

V_B = **206.0** cubic yards

Class A, Substructure

V_A = (L_s X W_s X H_s + L_c X W_c X H_c) X 1/27

V_A = **300.0** cubic yards

Reinforcing Bar Quantities

Footings	**22,660**	lbs.
Stem and Cap	**39,000**	lbs.
Total	**61,660**	lbs.

Piling Quantities

Est of Piles per Pier	50	piles
Estimated Pile Length	60	ft.
Total Length of Piles	**3,000**	linear feet

Rev. 9/2/09