



**SUPPLEMENTAL WORK AUTHORIZATION NO. 1
TO
WORK AUTHORIZATION NO. 2**

**WILLIAMSON COUNTY ROAD BOND PROJECT:
SH 29 at DB Wood Road Intersection Improvements**

This Supplemental Work Authorization No. 1 to Work Authorization No. 2 is made pursuant to the terms and conditions of the Williamson County Contract for Engineering Services, being dated October 16, 2014 ("Contract") and entered into by and between Williamson County, Texas, a political subdivision of the State of Texas, (the "County") and Unintech Consulting Engineering, Inc. (the "Engineer").

WHEREAS, the County and the Engineer executed Work Authorization No. 2 dated effective September 1, 2016 (the "Work Authorization");

WHEREAS, pursuant to Article 14 of the Contract, amendments, changes and modifications to a fully executed Work Authorization shall be made in the form of a Supplemental Work Authorization; and

WHEREAS, it has become necessary to amend, change and modify the Work Authorization.

AGREEMENT

NOW, THEREFORE, premises considered, the County and the Engineer agree that the Work Authorization shall be amended, changed and modified as follows:


- I. The Services to be Provided by the Engineer that were set out in the original Attachment "B" of the Work Authorization are hereby amended, changed and modified as shown in the attached revised Attachment "B" (must be attached).
- II. The Work Authorization shall terminate on March 31, 2018. The Services to be Provided by the Engineer shall be fully completed on or before said date unless extended by an additional Supplemental Work Authorization. The revised Work Schedule is attached hereto as Attachment "C" (must be attached).
- III. The maximum amount payable for services under the Work Authorization is hereby increased from \$658,144.20 to \$986,654.20. The revised Fee Schedule is attached hereto as Attachment "D" (must be attached).

Except as otherwise amended by prior or future Supplemental Work Authorizations, all other terms of the Work Authorization are unchanged and will remain in full force and effect.

This Supplemental Work Authorization does not waive the parties' responsibilities and obligations provided under the Contract.

IN WITNESS WHEREOF, the County and the Engineer have executed this Supplemental Work Authorization, in duplicate, to be effective as of the date of the last party's execution below.

ENGINEER:

By: 
Signature

Kum Wing Chan, P.E.

Printed Name


Vice President, Civil Division

Title

2017.09.05 10:41:47-05'00'

Date

COUNTY:

By: 
Signature

DAR A GATTI

Printed Name

(-and) only-

Title

07-22-2017

Date

LIST OF ATTACHMENTS

Attachment A - Services to be Provided by County

Attachment B - Services to be Provided by Engineer

Attachment C - Work Schedule

Attachment D - Fee Schedule

ATTACHMENT A

SERVICES TO BE PROVIDED BY THE COUNTY

The **COUNTY** shall furnish to the **ENGINEER** the following items as required:

1. Existing traffic signal plans for the intersection of SH 29 and DB Wood Road\
2. Existing traffic signal timing plan for the intersection of SH 29 and DB Wood Road
3. Available utility information at the intersection
4. Available ROW information at the intersection
5. Existing as-builts for SH 29 and DB Wood Road
6. Right-of-Entry documents for all properties within the project limits
7. Geologic Assessment
8. General Notes
9. Perform TDLR review
10. Timely review and decisions necessary for the **ENGINEER** to maintain project schedule.

Attachment B

WILLIAMSON COUNTY

SH 29 at D.B. Wood Road Improvements

SUPPLEMENTAL AGREEMENT NO. 1 TO WORK AUTHORIZATION NO. 2 **SERVICES TO BE PROVIDED BY THE ENGINEER**

The SH 29 at D.B. Wood Road Improvement project ("Project") involves improvements to approximately 5,000 linear feet of SH 29 and 2,000 linear feet of D.B. Wood Road north of SH 29 and 1,000 linear feet south of SH 29. This intersection is in a high growth corridor for both Williamson County and the City of Georgetown. SH 29 is a major east-west corridor in central Williamson County, while DB Wood provides access along the west side of Georgetown in a north-south corridor. This area is within the study area for the future SW Bypass that will continue the SE Inner Loop from IH-35 around the southwest side of Georgetown connecting to DB Wood north of SH 29. Since the corridor has not been finalized, improvements to this intersection are critical to the efficient and safe movement of vehicles in the area.

Work Authorization No. 2, approved on September 1, 2016, was developed to implement a 4-lane raised median section with two turn lanes along SH 29, with concrete curb & gutter and open ditches behind the curb, utilizing swales for WPAP requirements. It will also include between a 5-lane and 6-lane section along DB Wood, with concrete curb & gutter, retaining walls, storm drain and open ditches behind the curb, utilizing both for WPAP.

The construction plan set (plan set) for this project shall contain the required drawings and details pertaining to grading, paving, signing, pavement marking, delineation, retaining walls, traffic signal modification, sequence of construction, traffic control, drainage and utility coordination. The plan set shall be prepared in English units and shall be suitable for the bidding and award of a contract through the County construction contracting system.

The tasks and products contained in this supplemental agreement are more fully described in the following TASK OUTLINE.

TASK OUTLINE

SURVEY & ROW (BY UNINTECH)

A. ADDITIONAL SCOPE OF SURVEY & ROW SERVICES

1. The Surveyor will complete a tree survey on a portion of the First Baptist Church property near the easterly property line on SH 29 to obtain the locations, trunk diameters, and types of trees as needed to produce a drawing to show this information. The area to be covered by the tree survey is approximately 200-feet by 300-feet.
2. The Surveyor will complete a tree survey on a portion of the First Baptist Church property and adjacent property at the southerly property line on DB Wood Road to obtain the locations, trunk diameters, and types of trees as needed to produce a drawing to show this information. The area to be covered by the tree survey is approximately 100-feet by 300-feet.
3. The surveyor will prepare parcel plats and metes and bounds descriptions and signed and sealed by a Texas Registered Professional Land Surveyor for a shared driveway easement located at the south property line of the First Baptist Church property and adjacent property to the south.
4. The surveyor will prepare parcel plats and metes and bounds descriptions and signed and sealed by a Texas Registered Professional Land Surveyor for Temporary Construction Easements for the construction of retaining walls along the west side of DB Wood Road across three properties for a total distance of approximately 465 linear feet.

5. The Surveyor will attend a coordination meeting with the TxDOT Right-of-Way Division to review the format of right-of-way acquisition documents and easements.

B. DELIVERABLES

The Surveyor shall provide:

1. PDF file of each Surveyor's metes and bounds, legal descriptions and ROW Maps.
2. Exhibits of tree surveys conducted at the First Baptist Church

GEOTECHNICAL SERVICES (BY KLEINFELDER)

Two retaining walls will be constructed on the east side of the DB Wood Road totaling approximately 495 linear feet in length. The original scope was based on 265 linear feet of retaining walls. Because there are potential conflicts with a City of Round Rock raw water line that runs along the east side of DB Wood Road, the use of Mechanically Stabilized Earth (MSE) retaining walls needs to be evaluated at both locations for the additional retaining walls to eliminate the conflicts.

A. ADDITIONAL SCOPE OF GEOTECHNICAL SERVICES

1. Evaluation of MSE Retaining Walls

Perform an engineering analysis for the external (bearing, overturning, and eccentricity) and global stability to provide design recommendations for the proposed MSE walls near borings RW-3 and RW-4 along DB Wood Road in accordance with TxDOT requirements. The design recommendations will include the following items:

- a. Minimum lengths of reinforcements that meet the minimum requirements by TxDOT in terms of bearing capacity, sliding, overturning, eccentricity, and global stability analysis.
- b. Soil parameters for the foundation and retained soils and minimum over-excavation and replacement of the foundation soil for improvement, if deemed necessary.

B. DELIVERABLES

1. Letter verification that the results of the analysis meet TxDOT minimum design requirements.
2. TxDOT Design Data Sheets for both walls

ADDITIONAL DESIGN & COORDINATION (BY UNINTECH)

A. ADDITIONAL SCOPE OF ROADWAY PLANS & GEOMETRY

2. In the scope agreement to Work Authorization No. 2 there was an underestimation to the amount of effort that would be required to provide multiple geometric design concepts for the intersection improvements and to evaluate the feasibility and implications of providing dual left turn lanes and right turn lanes in all directions. In addition, the impacts to access, drainage and water quality, utilities, and right-of-way requirements were also underestimated and a greater effort was required as multiple concepts provided additional work and different challenges that needed to be evaluated and designed in accordance with TxDOT, Williamson County and the City of Georgetown standards.

The following are included:

- a. Miscellaneous Plans
- b. Roadway Plans & Geometry
- c. Drainage and Erosion Control Design
- d. Water Pollution Abatement Plan
- e. Signing and Pavement Markings
- f. Traffic Control Plan
- g. Quantities

- h. Summary Sheets
 - i. Standards, Specifications, and Estimate
2. Design additions for DB Wood Road including the following:
 - a. Retaining Wall Revisions
 - i. Conduct a layout analysis of alternative retaining wall locations and types of walls to determine impacts to the City of Round Rock raw water line and the City of Georgetown domestic water line. This analysis includes evaluation of both cast-in-place concrete and mechanically stabilized earth (MSE) retaining walls.
 - ii. Meet with cities of Round Rock and Georgetown to review the retaining wall alternatives and achieve a resolution to the conflicts.
 - iii. Incorporate MSE Design Data Sheets for the retaining walls in the plan set.
 - iv. Design additional 230 linear feet of retaining wall on east side of DB Wood Road.
 - v. Design additional 465 linear feet of retaining wall on west side of DB wood Road
 - b. Adjust the alignment of DB Wood Road north of SH 29 as a result of coordination meetings with the cities of Round Rock and Georgetown to minimize impacts to the Round Rock raw water line and the Georgetown domestic water line.
 - c. Revise the cross sections for DB Wood Road north of SH 29 for the adjusted alignment.
 - d. Revise sidewalks location on both sides of DB Wood Road north of SH 29 due to retaining wall location.
 - e. Conduct an analysis of alternative sidewalk profiles for sidewalks on the back side of the retaining walls on the east side of DB Wood Road to evaluate impacts to the City of Round Rock raw water line and City of Georgetown domestic water line.
 3. Revise center median design on SH 29 to eliminate grass and curb and gutter and go with stamped concrete and mono curb.
 4. Attend additional meetings with TxDOT in connection with environmental reports, public meeting, WPAP, etc. not included in original scope.
 5. Prepare additional TxDOT documents and forms required for all submittals, including forms 2442, 2443, 2448, 1204, and additional checklists for each submittal.
 6. QA/QC reviews for additional design items.
 7. Additional Project Management (Additional 5 months)
 - a. Prepare & submit monthly invoices (5)
 - b. Prepare monthly Progress Reports (5)
 - c. Monthly meetings with County/HNTB (5)
 - d. Prepare project meeting summaries (5)
 - e. Design Team coordination meetings (2 per month)
 - f. Review subconsultants monthly invoices, progress reports, etc.
 - g. Review & coordinate subconsultants designs
 - i. Review final geotechnical report & pavement designs – Kleinfelder
 - ii. Review additional drainage designs & cross sections – CP&Y
 - iii. Review intersection traffic study & temporary signal designs for TCP - HDR
 - h. Incorporate joint bid utility relocation plans into plan set

SIGNALIZATION & TRAFFIC ANALYSIS (BY HDR)

A. ADDITIONAL SCOPE OF SIGNALIZATION & TRAFFIC ANALYSIS

1. The Engineer will complete the following tasks in connection with the preparation of temporary signal plans for the traffic control phases:
 - a. Coordinate with the design team to obtain information regarding the traffic control phases and sequence of construction.
 - b. Meet with TxDOT to discuss design requirements for temporary signals. One (1) meeting is assumed.

- c. Prepare 60% temporary signal design plans. 60% plans will include temporary signal layout showing all above ground equipment. Three phases of construction are assumed. Each phase will require its own temporary signal layout.
 - d. Coordinate with County, TxDOT, and/or City to review and address comments.
 - e. Prepare 90% temporary signal design plans addressing all previous comments. 90% plans will include temporary signal layouts, conductor/conduit schedules, elevations, detection, foundations, quantities, general notes, and applicable standards.
 - f. Review and address 90% comments from County, TxDOT, and/or City. One comment resolution meeting is assumed.
 - g. Prepare 100% (signed and sealed) temporary signal design plans incorporating all previous comments from County, TxDOT and/or City.
2. The Engineer will complete the following tasks to evaluate traffic operations at the intersection of SH 29 and DB Wood Road:
- a. Coordinate with the design team and TxDOT to obtain Year 2035 and 2045 forecasted AM and PM peak turning movement counts for the intersection. All necessary data for analysis will be provided by TxDOT.
 - b. Review and summarize intersection data in an excel spreadsheet.
 - c. Perform AM and PM peak hour capacity analysis using the 60% intersection layout as the base geometry. Analysis will be performed using software "Syncro" for the following scenarios:
 - i. 2020 AM Peak (opening year)
 - ii. 2020 PM Peak (opening year)
 - iii. 2035 AM Peak
 - iv. 2035 PM Peak
 - v. 2045 AM Peak
 - vi. 2045 PM Peak

The analysis will be used to evaluate the need for dual left-turn lanes for each of the four approaches.
 - d. Prepare a draft technical memorandum summarizing the results of the traffic operational analysis.
 - e. Meet with Unintech and HNTB to discuss comments and results. One (1) meeting is assumed.
 - f. Submit a final technical memorandum.

DRAINAGE DESIGN & CROSS SECTIONS (BY CP&Y)

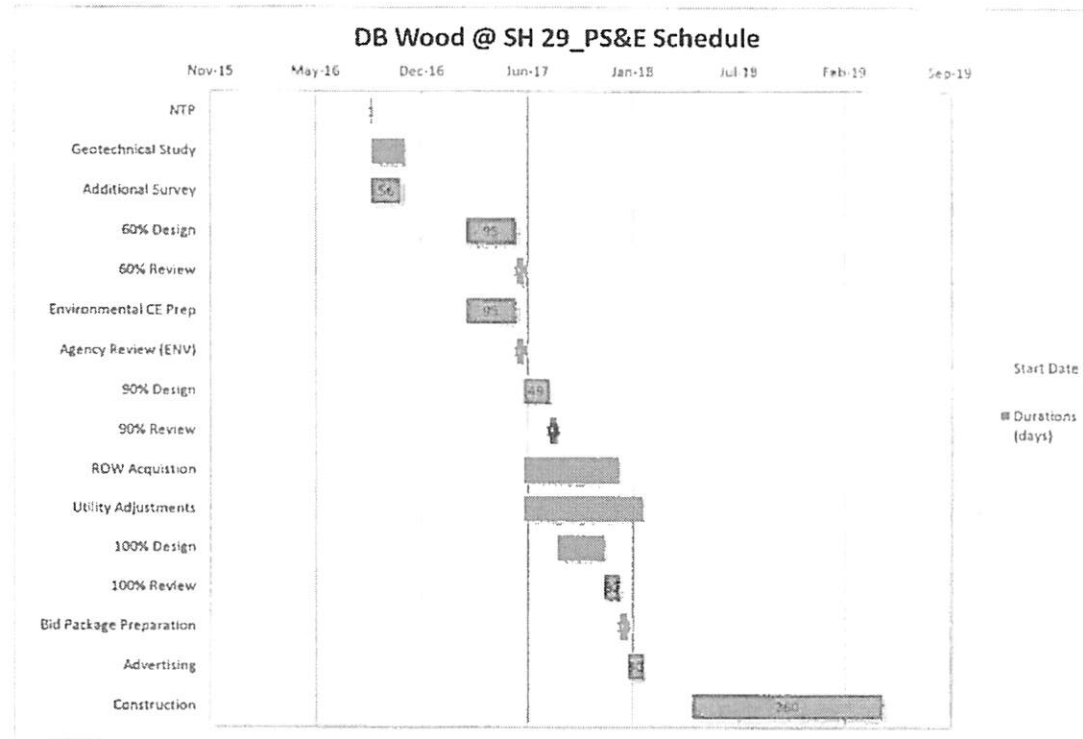
Additional effort for the drainage design and cross sections includes changes not anticipated from the original schematic and multiple additional efforts for the 60% submittals, including: multiple iterations of sidewalk inclusion/removal and adjustments affecting water quality calculations, drainage and cross sections; retaining wall adjustments with multi-tiered design for sidewalk accommodation affecting drainage and cross sections; shifting of the horizontal alignment for DB Wood Road north of SH 29 to the west to accommodate utilities affecting water quality, drainage and cross sections; significant modifications to median curb islands affecting cross sections, drainage inlet design and storm sewer layout.

A. ADDITIONAL SCOPE OF DRAINAGE DESIGN & CROSS SECTIONS

- 1. Revisions to storm sewer design including:
 - a. Re-delineation of drainage areas due to changes in road design and median locations.
 - b. Additional area computation effort due to these changes
 - c. Additional storm sewer computations due to these changes
 - d. Additional effort on drainage plan and profile sheets due to these changes.
- 2. Additional cross section iterations required for changes in median layouts, superelevation changes, retaining wall & sidewalk modifications, and shifting of alignment from schematic.
- 3. Additional internal project meetings & coordination.

Attachment C - Work Schedule

DB Wood @ SH 29_PS&E Schedule			
Tasks			
Start Date	End Date	Description	Durations (days)
9/1/2016	9/2/2016	NTP	1
9/2/2016	11/4/2016	Geotechnical Study	63
9/2/2016	10/28/2016	Additional Survey	56
2/27/2017	6/2/2017	60% Design	95
6/2/2017	6/16/2017	60% Review	14
2/27/2017	6/2/2017	Environmental CE Prep	95
6/2/2017	6/16/2017	Agency Review (ENV)	14
6/16/2017	8/4/2017	90% Design	49
8/4/2017	8/18/2017	90% Review	14
6/16/2017	12/13/2017	ROW Acquisition	180
6/16/2017	1/27/2018	Utility Adjustments	225
8/18/2017	11/16/2017	100% Design	90
11/16/2017	12/16/2017	100% Review	30
12/16/2017	12/30/2017	Bid Package Preparation	14
1/1/2018	1/31/2018	Advertising	30
5/2/2018	4/27/2019	Construction	360



ATTACHMENT D - FEE SCHEDULE

SH 29 AT DB WOOD ROAD
Supplemental Work Authorization No. 1 to Work Authorization No. 2
Williamson County

Task Description	Total Cost
<u>TOTAL LABOR COSTS (UNINTECH)</u>	
SURVEY & ROW	\$ 7,370.00
ADDITIONAL DESIGN & COORDINATION TASKS (1-7)	\$ 238,045.00
SUB-TOTAL LABOR EXPENSES	\$ 245,415.00
<u>SUMMARY</u>	
TOTAL LABOR COSTS (UNINTECH)	\$ 245,415.00
EXPENSES	
UNINTECH FEE	\$ 245,415.00
<u>SUBCONSULTANTS</u>	
CP&Y	\$ 23,164.00
HDR	\$ 51,991.00
Kleinfelder	\$ 7,850.00
GRAND TOTAL	\$ 328,420.00

SH 29 AT DB WOOD ROAD

Business Attachment D: Supplemental No. 1002117 db

ATTACHMENT D

SH 29 AT DB WOOD ROAD										
Williamson County										
Fee Schedule/Budget for Unitech Consulting Engineers, Inc.										
Task Description - Supplemental PS&E Tasks	Project Manager	Senior Engineer	Project Engineer	Design Engineer	E.I.T.	Drainage Engineer	Senior CADD Operator	Admin / Clerical	Total Labor Hours	Total Direct Labor Costs
	\$195.00	\$160.00	\$135.00	\$110.00	\$95.00	\$130.00	\$95.00	\$45.00		
7 Additional Project Management (5 additional months)										
a Prepare and submit monthly invoices	10							5	15	\$ 2,175.00
b Prepare monthly progress reports	5								5	\$ 975.00
c Monthly coordination meetings with County/HNTB	15								15	\$ 2,925.00
d Prepare project meeting summaries	10								10	\$ 1,950.00
e Design Team coordination meetings (2 per month)	10	10							20	\$ 3,550.00
f Review of subconsultants monthly invoices, progress reports, etc.	5	5							10	\$ 1,775.00
g Review & Coordinate Subconsultant Designs										\$ -
i) Review final geotechnical report & pavement designs - Kleinfelder	2								2	\$ 390.00
ii) Review additional drainage designs & cross sections CP&Y	4	4	4						12	\$ 1,950.00
iii) Review traffic study & temporary signal design for TCP - HDR	8								8	\$ 1,560.00
h Incorporate joint bid utility relocation plans	4	8					8		20	\$ 2,820.00
										\$ -
										\$ -
TOTAL - 7										\$ 20,080.00
ADDITIONAL DESIGN & COORDINATION HOURS & FEE Task 7	73	27	4	0	0	0	8	5	117	\$ 20,080.00
ADDITIONAL DESIGN & COORDINATION FEE Tasks 1-4										\$ 217,565.00
SUBTOTAL ADDITIONAL DESIGN & COORDINATION FEE										\$ 238,645.00
SUBTOTAL SUPPLEMENTAL FEE TASKS 1-7										\$ 322,840.00

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SH 29 AT DB WOOD ROAD									
Williamson County									
Fee Schedule/Budget for CP&Y, Inc.									
Task Description	Project Manager	Senior Engineer	Design Engineer	E.I.T.	Chief Hydrologist	Total Labor Hours	Total Direct Labor Costs		
	\$225.00	\$145.00	\$115.00	\$95.00	\$185.00				
<u>I thru V, PS&E</u>									
<u>I Roadway Design Controls</u>									
C-1 Design Cross Sections at 50-ft intervals	6	12	24	40		82	\$ 9,810.00		
						82	\$ 9,810.00		
<u>II Drainage (A-1 through A-8)</u>									
A-2 Storm sewer design, 10-yr frequency							\$ -		
b Interior Drainage Areas	2	2	12	24		40	\$ 4,444.00		
c Run-off Calculations			2	4		6	\$ 614.00		
d Analyze Storm Sewer Systems	2		4	24		30	\$ 3,214.00		
f Drainage Plan & Profile 1"=100' H and 1"=10' V	2		6	16		24	\$ 2,676.00		
						100	\$ 10,948.00		
<u>IV Miscellaneous (Roadway)</u>									
<u>V Project Management (8 Months)</u>									
7 Internal Design Team Meetings (8)	4	6		6		16	\$ 2,406.00		
						16	\$ 2,406.00		
<u>I thru V, PS&E SUBTOTAL</u>									
HOURS SUB-TOTALS	18	20	48	114	0	198	\$ 23,164.00		
SUBTOTAL	\$ 3,600.00	\$ 3,100.00	\$ 5,520.00	\$ 10,944.00	\$		\$ 23,164.00		
<u>DIRECT EXPENSES</u>									
WORK AUTHORIZATION 3 TOTAL									
							\$ -		
							\$ 23,164.00		



Attachment D

MSE Wall at RW-3

FEE ESTIMATE

SH29 and DB Wood Widening
DB Wood MSE Wall
Williamson County, Texas

Engineering - MSE Wall	Quantity	Unit	Rate	Cost
CADD Operator MSE Wall Design Data Sheet	3	hour	\$ 70.00	\$ 210.00
Senior Engineer, MSE Wall Design Information Includes external and global stability, embankment settlement, and soil parameters for foundation and retained soils, minimum reinforcement length, and ground improvement depth if needed	13	hour	\$ 155.00	\$ 2,015.00
Senior Principal Professional, MSE Wall Review	6	hour	\$ 160.00	\$ 960.00
Senior Principal Professional, Project Management	4	hour	\$ 160.00	\$ 640.00
Assistant Project Manager	0	hour	\$ 95.00	\$ -
Administrative	2	hour	\$ 50.00	\$ 100.00
Subtotal				\$ 3,925.00

Total \$ 3,925.00



Attachment D

MSE Wall at RW-4

FEE ESTIMATE

SH29 and DB Wood Widening
DB Wood MSE Wall
Williamson County, Texas

Engineering - MSE Wall	Quantity	Unit	Rate	Cost
CADD Operator MSE Wall Design Data Sheet	3	hour	\$ 70.00	\$ 210.00
Senior Engineer, MSE Wall Design Information Includes external and global stability, embankment settlement, and soil parameters for foundation and retained soils, minimum reinforcement length, and ground improvement depth if needed	13	hour	\$ 155.00	\$ 2,015.00
Senior Principal Professional, MSE Wall Review	6	hour	\$ 160.00	\$ 960.00
Senior Principal Professional, Project Management	4	hour	\$ 160.00	\$ 640.00
Assistant Project Manager	0	hour	\$ 95.00	\$ -
Administrative	2	hour	\$ 50.00	\$ 100.00
Subtotal				\$ 3,925.00

Total \$ 3,925.00

Subtotal RW #3 \$3,925.00
Subtotal RW #4 \$3,925.00
Total \$7,850.00

**ATTACHMENT D - AMENDMENT 2
FEE SCHEDULE**

SUB CONSULTANT: NDR Engineering, Inc.

[illegible]

Direct Cost	Contract Rate	Unit	Quantity	Amount
Standard Paving	0.48	Sq. Yd.		\$0.00
Man	\$20	Each		\$0.00
Test Charges	\$4.00	Each		\$0.00
Strip Pits (11' x 17')	\$2.00	Sheet		\$0.00
Course Surveys	\$25.00	Each	2	\$50.00
Final Section (2 W. 1/2" x 11")	\$4.10	Sheet	50	\$185.00
Final Section Color (3 (27' x 11"))	\$1.00	Sheet		\$0.00
Final Section (2 W. 1/2" x 11")	\$2.20	Sheet	200	\$440.00
Final Section Canada	\$5.00	Hour		\$0.00
Final Section (2 W. 1/2" x 11")	\$180.00	Each		\$0.00
Recovery Tube (per counter 24 Hours)	\$0.560	Per Meter	100	\$56.00
Man				
SUB-TOTAL DIRECT COST				\$185.00
SUB-TOTAL LABOR				\$185.00
TOTAL COST				\$185.00
TOTAL LUMP SUM FEE				\$185.00
TOTAL				\$370.00

Total **\$51,991.00**